

Stormwater Division

MEMORANDUM

DATE: March 4, 2010
TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
FROM: Jo Anna Ripley, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: PC206

PIN: 3910100012

Subdivision, Tract, Business or Owner

Name (if known):

Smith, Carol C

Property Description:

Lot 8 Tewning Commercial Park - Weathercrafters

Site Address:

128 Tewning Road

(For internal use only)

Box 5

Drawer: 3

Agreements: (in file as of scan date)

Y

Book or Doc#:

000023220

Page:

Comments

Date Record Created:
Created By:

WS_BMPNO:
PC206

WATERSHED
BMP ID NO
PLAN NO

TAX PARCEL
PIN NO

CONSTRUCTION DATE
PROJECT NAME

FACILITY LOCATION
CITY-STATE

CURRENT OWNER
OWNER ADDRESS

OWNER ADDRESS 2
CITY-STATE-ZIP CODE

OWNER PHONE

MAINT AGREEMENT
EMERG ACTION PLAN

Get Last BMP No
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PRINTED ON
Thursday, March 04, 2010
4:39:12 PM

Print Record

MAINTENANCE PLAN
SITE AREA acre

LAND USE
old BMP TYP

JCC BMP CODE
POINT VALUE

SVC DRAIN AREA acres

SERVICE AREA DESCRI

IMPERV AREA acres
RECV STREAM

EXT DET-WQ-CTRL
WTR QUAL VOL acre-ft

CHAN PROT CTRL
CHAN PROT VOL acre-ft

SW/FLOOD CONTROL
GEOTECH REPORT

Additional Comments:

Yes
1
Commerical
Infiltration Trench
C2 Infiltration Trench 1.0

CTRL STRUC DESC
CTRL STRUC SIZE inches
OTLT BARRL DESC
OTLT BARRL SIZE inch

Storm Cham
11ftx30ft
n/a

EMERG SPILLWAY
DESIGN HW ELEV
PERM POOL ELEV

No
n/a
n/a

2-YR OUTFLOW cfs
10-YR OUTFLOW cfs
REC DRAWING

0.01
0.01
Yes

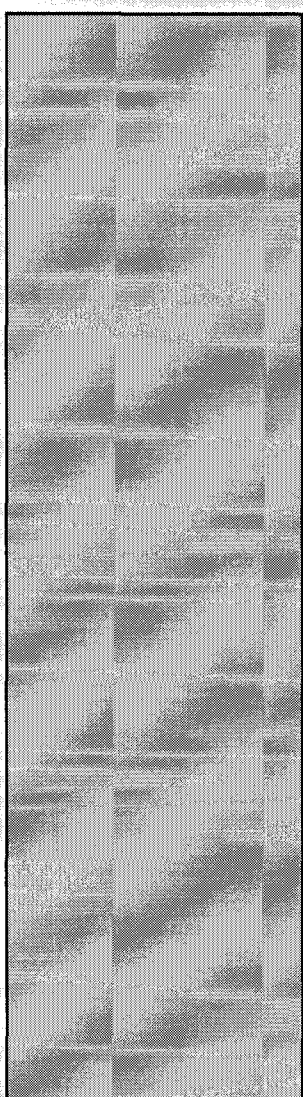
Light industrail, Parking Lot, Roof
0.13
CONSTR CERTIF

Yes
Powhatan Creek

No
LAST INSP DATE 8/27/2007
INTERNAL RATING

Inspected by:
3
MISC/COMMENTS

Lot 8 Tewning Road Commerce Park /
452cutt of storage required



DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

COPY ✓

THIS DECLARATION, made this 13 day of DECEMBER, 2000,
between WEATHER CRAFTERS LTD.
and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the
following property: 128 TEUNING ROAD WIMSBURG, VA.
Deed Book 564, Page No. 846 or Instrument No. _____,
and James City County, Virginia, hereinafter referred to as the "COUNTY."

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the SYSTEM. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the SYSTEM.

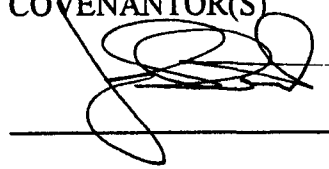
9. This COVENANT shall be recorded in the County Land Records.

Instrument # 000023220

Recorded on 12-21-00

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 13 day of December, 2000

COVENANTOR(S)



Print Name/Title

JAMES S. SMITH (PRESIDENT)

ATTEST:

COVENANTOR(S)

Print Name/Title

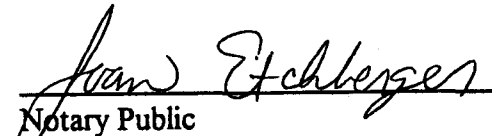
ATTEST:

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF James City

I hereby certify that on this 13th day of December, 2000, before the subscribed, a Notary Public of the State of Virginia, and for the City/County of James City, aforesaid personally appeared James S. Smith and did acknowledge the foregoing instrument to be their Act.

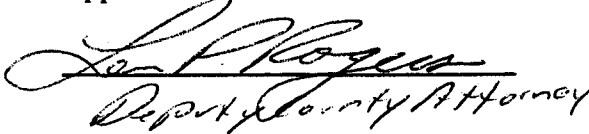
IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 13th day of December, 2000.


Notary Public

My Commission expires:

9/25/2004

Approved as to form:


Deputy County Attorney

This Declaration of Covenants prepared by:

JAMES S. SMITH

(Print Name)

PRESIDENT

(Title)

128 TEWNING ROAD

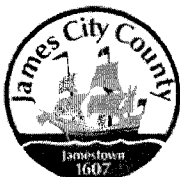
(Address)

WILLIAMSBURG, VA. 23188

(City)

(State)

(Zip)



**James City County Environmental Division
Stormwater Management/BMP Record Drawing &
Construction Certification Review
Tracking Form**

128 Tawning Rd

vi

Project Name: Weathercrafters Expansion
County Plan No.: SP-140-99 (SP-05-03 Amend)
Stormwater Management Facility: Infiltration Trench
BMP Phase #: ☐ I ☐ II ☒ III
☒ Information Package Received. Date/By: 8/16/07
☒ Completeness Check:
 ☒ Record Drawing Date/By: 8/16/07 AES
 ☒ Construction Certification Date/By: 8/10/07 Mark Richardson AES
 ☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
 ☒ Insp/Maint Agreement # / Date: 12/13/00
 ☒ BMP Maintenance Plan Location: BMP Record Drawing JCC SP-140-00
 ☐ Other: _____
☒ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
 ☒ Yes ☐ No Location: SP-140-00 pg. 4
☒ Assign County BMP ID Code #: Code: PC 206
☒ Preliminary Input/Log into Division's "As-Built Tracking Log" #211
☒ Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
☒ Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
☒ Active Project File Review (correspondence, H&H, design computations, etc.)
☒ Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.)
☒ Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).
☒ Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).
Final Inspection (FI) Performed Date: 8/27/07 & 8/23/07
Record Drawing (RD) Review Date: 8/23/07
Construction Certification (CC) Review Date: 8/23/07
Actions:
 ☒ No comments.
 ☐ Comments. Letter Forwarded. Date: _____
 ☐ Record Drawing (RD)
 ☐ Construction Certification (CC)
 ☐ Construction-Related (CR)
 ☐ Site Issues (SI)
 ☐ Other: _____
☐ Second Submission: _____
☐ Reinspection (if necessary): _____
☒ Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.
☒ Complete "Surety Request Form".
☒ Check/Clean active file of any remaining material and finish "As-Built" file.
☒ Add to County BMP Inventory/Inspection schedule (Phase I, II or III).
☒ Copy Final Inspection Report into County BMP Inspection Program file.
☒ Obtain Digital Photographs of BMP and save into County BMP Inventory.
☒ Request mylar/reproducible from As-Built plan preparer. - Called Mark Richardson, AES 8/28/07
☒ Complete "As-built Tracking Log".
☒ Last check of BMP Access Database (County BMP Inventory).
☐ Add BMP to JCC Hydrology & Hydraulic database (optional).
☐ Add BMP to Municipal BMP list (if a County-owned facility).
☒ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Plan Reviewer: Jason Beck Date: 8/27/07

*** See separate checklist, if needed.

[Signature]
08/27/07



**James City County Environmental Division
Stormwater Management / BMP Inspection Report
Infiltration Basin and Trench Facilities**

County BMP ID Code (if known): PC-206 Row 233/211

Name of Facility: Weathercrafters Expansion BMP No.: 1 Date: 8/23/07

Location: 128 Tewning Road

Name of Owner: Jim Smith, jr (Weather Crafters)

Name of Inspector: Jason Beck

Type of Facility: Infiltration Trench

Weather Conditions: overcast Type: ☒ Final Inspection ☐ County BMP Inspection Program ☐ Owners Inspection

If an inspection item is not applicable, mark NA, otherwise mark the appropriate column.

O.K. - The item checked is in adequate condition and the maintenance program is currently satisfactory. No action required.

Routine - The item checked requires attention, but does not present an immediate threat to the function/integrity of the BMP.

Urgent - The item checked requires immediate attention to keep the BMP operational and prevent damage to the facility.

Provide an explanation and details in the comment column, if routine or urgent are marked.

Facility Item	O.K.	Routine	Urgent	Comments
Accessibility:				
Roads	✓			
Parking Areas	✓			
Gates				
Locks				
Safety Fencing				
Observation Wells/Areas:				
Trap Doors	✓			
Manhole Covers	✓			
Grates	✓			
Steps	✓			
Pretreatment Devices: <input type="checkbox"/> Inlet <input type="checkbox"/> Sump <input type="checkbox"/> Forebay <input checked="" type="checkbox"/> Other				
Sediment	✓			
Trash & Debris	✓			
Structure	✓			
Other	✓			

Facility Item	O.K.	Routine	Urgent	Comments
Primary Storage/ Infiltration Area:				
Trash & Debris	✓			
Sediment		✓		
Ponding / Drawdown	✓			
Surface Aggregates	✓			
Aesthetics	✓			
Other	✓			
Inlet Structure # 1 (Describe Location):				
Condition of Structure	✓			
Erosion	✓			
Trash and Debris	✓			
Sediment	✓			
Aesthetics	✓			
Other	✓			
Inlet Structure # 2 (Describe Location):				
Condition of Structure	✓			
Erosion	✓			
Trash and Debris	✓			
Sediment	✓			
Aesthetics	✓			
Other	✓			
Inlet Structure # 3 (Describe Location):				
Condition of Structure				
Erosion				
Trash and Debris				
Sediment				
Aesthetics				
Other				
Outlets - Overflow or Bypass Control Structures (Describe Location):				
Condition of Structure				N/A
Erosion				
Trash and Debris				
Sediment				
Other				
Nuisance Type Conditions:				

Date: 8/27/07

AES CONSULTING ENGINEERS
Engineering, Surveying, and Planning
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Phone: (757) 253-0040
Fax: (757) 220-8994

LETTER OF TRANSMITTAL

ATTN: **Jason Beck**

CO.: **JCC Environmental**

Address:

cc:

DATE 8/29/07	JOB NO. 7014-1
FROM: Mark Richardson	
RE BMP Record Drawing	

RECEIVED

AUG 28 2007

ENVIRONMENTAL
DIVISION

WE ARE SENDING YOU THE FOLLOWING ITEMS:

- ☐ Attached
☐ Under separate cover via

- ☐ Original(s) ☐ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order
☐ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1	8/10/07	1	Mylar of BMP Record Drawing, Weathercrafters Expansion

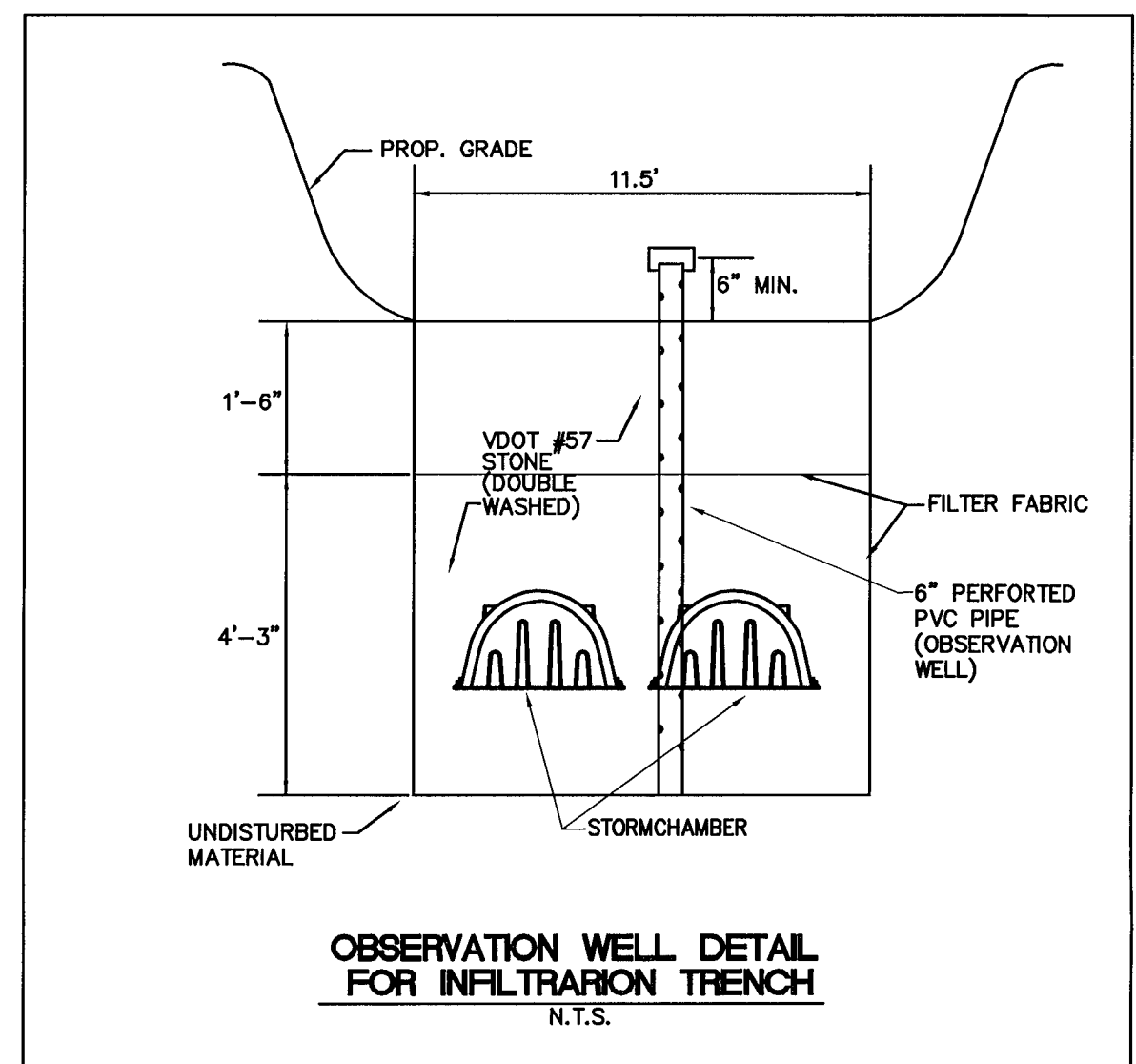
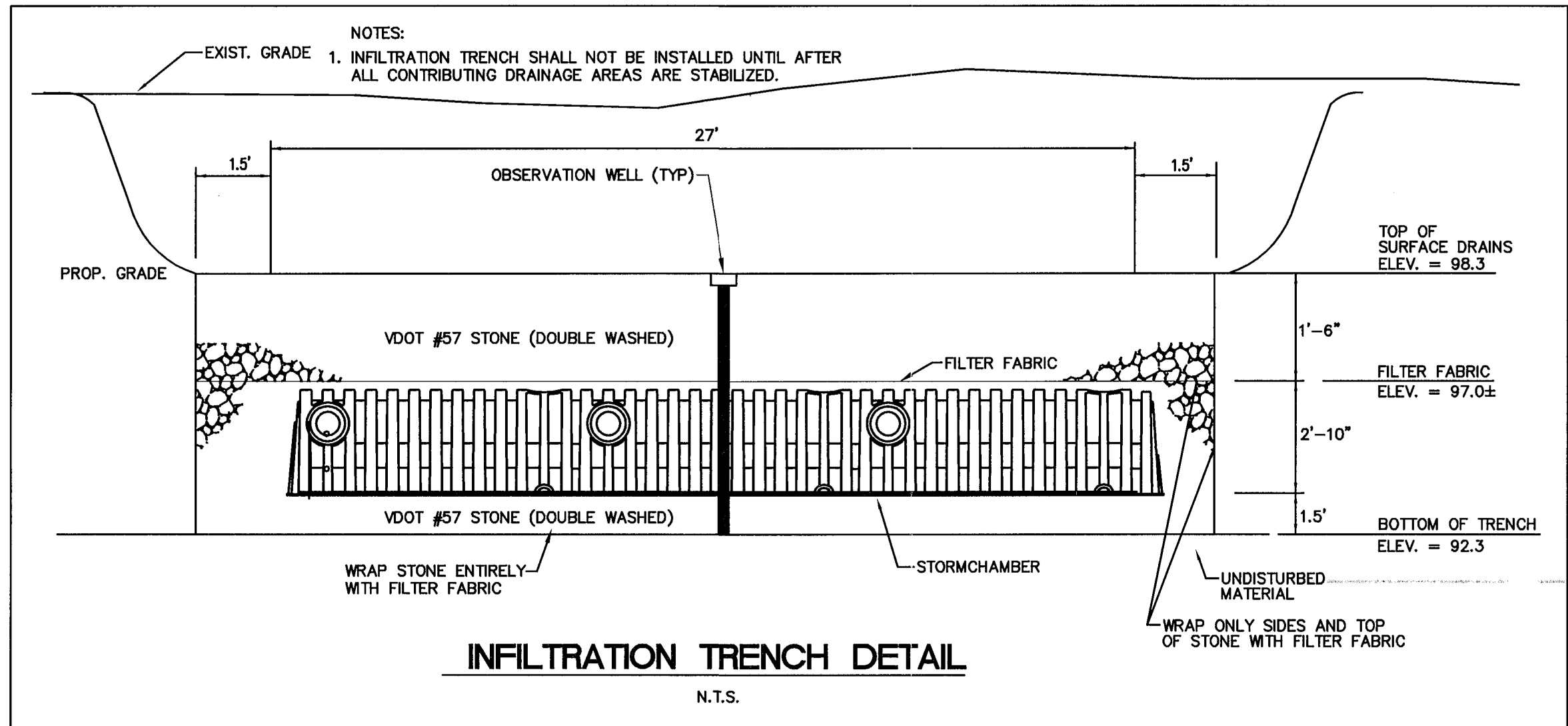
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- ☐ For your approval ☐ For your signature ☐ For review and comment
☐ For your use ☐ As you requested ☐ As requested by:
☐ Other:

REMARKS:

VIA: ☒ Hand Deliver ☐ UPS Ground ☐ UPS Next Day Air ☐ USPS Mail ☐ Other:

If enclosures are not as noted, kindly notify us at once.



INfiltration TRENCH MAINTENANCE REQUIREMENTS

THE FOLLOWING IS A MAINTENANCE PROGRAM FOR THE INFILTRATION TRENCH FOR THE WEATHERCRAFTERS EXPANSION. THE TRENCH SERVES 0.24 ACRES AT THE WEATHERCRAFTERS SITE ON TOWNING ROAD IN JAMES CITY COUNTY, VIRGINIA. THE FACILITY IS A 10 POINT COUNTY TYPE C-2 BMP. IT IS DESIGNED TO ENSURE PEAK RUNOFF FROM THE 2- AND 10- YEAR DESIGN FREQUENCY STORM EVENTS WERE NOT INCREASED DUE TO DEVELOPMENT OF THE SITE AND TO ENSURE WATER QUALITY CRITERIA IS MET.

THE MAINTENANCE PROGRAM IS REQUIRED TO ENSURE THE STORMWATER MANAGEMENT / BEST MANAGEMENT PRACTICE (BMP) INFILTRATION FACILITY FUNCTIONS AS DESIGNED AND TO PROVIDE FOR REASONABLE AESTHETIC CONDITIONS. PROPER MAINTENANCE IS ENCOURAGED TO PREVENT THE INTRODUCTION OF DEBRIS AND SEDIMENT INTO PRETREATMENT AREAS, THE BMP INFILTRATION AREA AND DOWNSTREAM WATERWAYS.

FOLLOWING INSTALLATION AND ESTABLISHMENT OF VEGETATION IN DISTURBED SITE AREAS, INSPECTIONS FOR SEDIMENT BUILDUPS SHALL BE PERFORMED AT LEAST QUARTERLY. IT IS ANTICIPATED THAT UNDER NORMAL CONDITIONS, SEDIMENT REMOVAL WILL BE REQUIRED ONCE PER YEAR. IF OTHER CONSTRUCTION OR RELATED LAND-DISTURBING ACTIVITIES ARE PERFORMED UPSLOPE OF THE BMP, ADEQUATE PROTECTION MEASURES SHOULD BE IMPLEMENTED WITH INSPECTIONS PERFORMED AT LEAST ONCE WEEKLY.

THE OWNER OR DESIGNATED REPRESENTATIVE WILL INSPECT THE SWM/BMP STRUCTURE AFTER EACH SIGNIFICANT RAINFALL EVENT OR THE FOLLOWING WORKING DAY IF A WEEKEND OR HOLIDAY OCCURS. A SIGNIFICANT RAINFALL FOR THIS STRUCTURE IS DEFINED AS ONE (1) INCH OR MORE OF GAUGED RAINFALL WITHIN A 24-HOUR PERIOD. ONCE PER YEAR (MORE OR LESS) A REPRESENTATIVE OF THE COUNTY MAY JOINTLY INSPECT THE STRUCTURE. APPROPRIATE ACTION, PERFORMED AT THE COST OF THE OWNER WILL BE TAKEN TO ENSURE APPROPRIATE MAINTENANCE. WHERE STRUCTURES ARE TO BE MAINTAINED JOINTLY, ALLOCATION OF MAINTENANCE COSTS WILL BE IN ACCORDANCE WITH TERMS ESTABLISHED IN MAINTENANCE AGREEMENTS. KEYS TO LOCKED ACCESS POINTS OR STRUCTURES SHALL BE MADE AVAILABLE TO THE COUNTY UPON REQUEST.

CHECK OBSERVATION WELLS IMMEDIATELY AFTER A SIGNIFICANT RAINFALL EVENT HAS CEASED OR ITS INTENSITY HAS SLOWED. IF THE TRENCH IS FULL OF STORMWATER RUNOFF, WATER SHOULD BE WITHIN THE FILTER STONE ZONES. IF THE OVERFLOW CHANNEL IS CONVEYING RUNOFF AND THE WATER LEVEL IN THE TRENCH IS RELATIVELY LOW, IT IS LIKELY THAT THE SURFACE LAYERS OF THE FILTERING STONE OR THE FILTER FABRIC ARE CLOGGED. IF THIS CONDITION IS PRESENT, THE TOP LAYERS OF THE FILTERING STONE AND FILTER FABRIC SHOULD BE REPLACED WITH CLEAN MATERIAL.

CHECK OBSERVATION WELLS 2 TO 3 DAYS FOLLOWING A SIGNIFICANT RAINFALL EVENT. IF STORMWATER IS PRESENT IN THE BOTTOM OF THE WELLS, COMPLETE REPLACEMENT OF THE FILTERING STONE AND FILTER FABRIC IS NECESSARY. ALTHOUGH THE LOCATION OF THE SEASONAL WATER TABLE SHOULD HAVE BEEN IDENTIFIED AS BELOW THE FACILITY DURING DESIGN, CARE SHOULD BE TAKEN TO ENSURE WATER PRESENT AT THE BOTTOM OF THE WELLS IS NOT DUE TO A HIGH GROUNDWATER TABLE RATHER THAN NON-OPERATION OF THE INFILTRATION SYSTEM. FOR EXAMPLE, IF THERE IS WATER IN THE OBSERVATION WELLS FOLLOWING A RAINFALL EVENT IN THE SPRING APRIL-MAY, BUT NOT IN THE SUMMER JULY-AUGUST, THE SEASONAL HIGH WATER TABLE MAY BE HIGHER THAN ORIGINALLY ANTICIPATED.

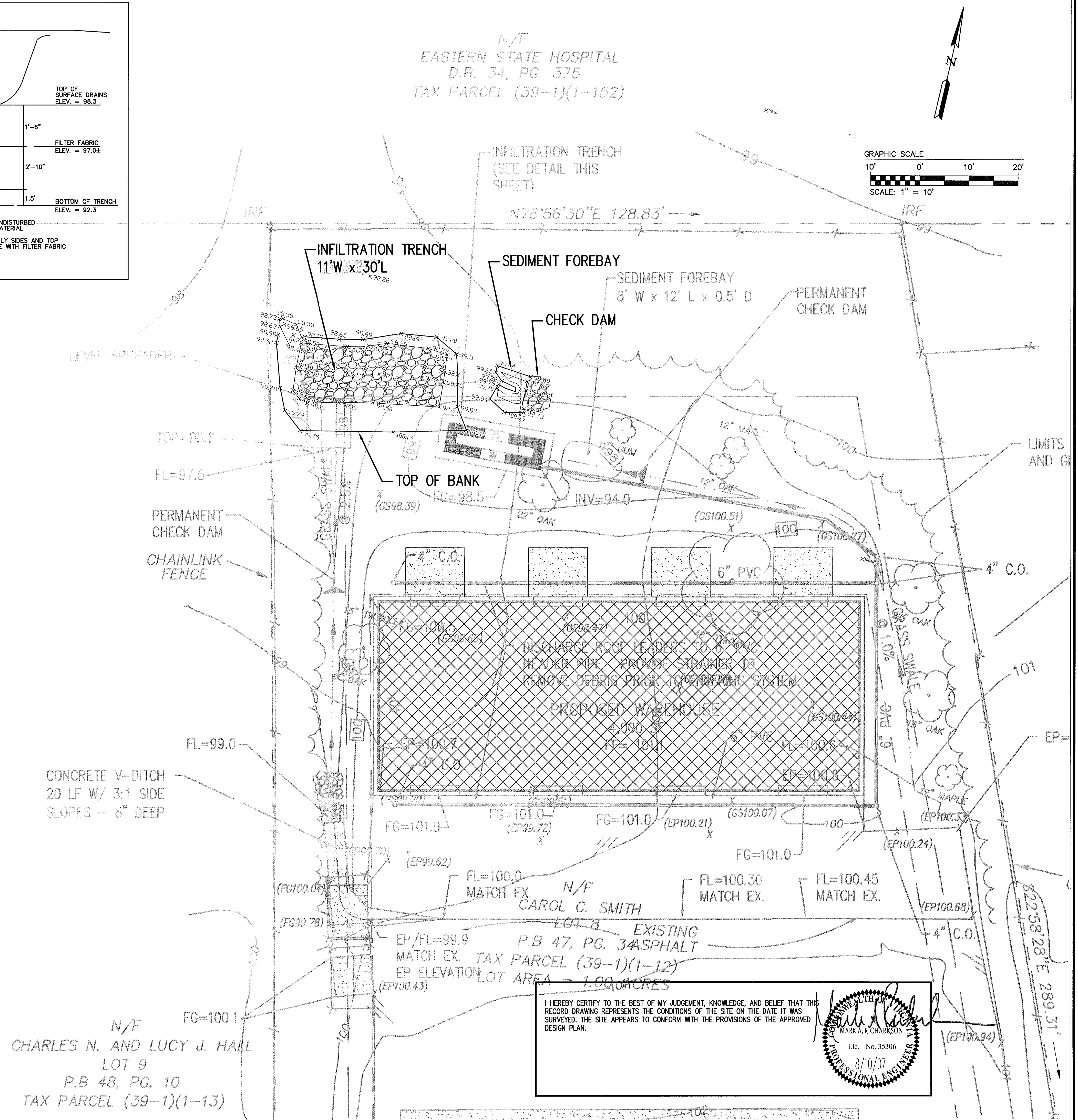
1. IMMEDIATELY REMOVE TRASH, DEBRIS OR SEDIMENT THAT PREVENTS THE MOVEMENT OF WATER AND TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AND PROVIDE FOR AN ATTRACTIVE APPEARANCE. PROPERTY MAINTENANCE MEASURES INCLUDING THE REMOVAL OF TRASH, LITTER AND SEDIMENT FROM SURROUNDING GRASS, PARKING AND STABILIZED CONTRIBUTING AREAS SHOULD BE PERFORMED WEEKLY TO PREVENT MIGRATION INTO THE BMP. DURING WINTER, KEEP SNOW REMOVAL MATERIALS SUCH AS SAND, SALT OR CINDERS AWAY FROM THE INFILTRATION AREA TO THE GREATEST EXTENT POSSIBLE. TRASH AND LITTER COLLECTION IS ENCOURAGED DAILY AROUND THE BMP. DISPOSE OF SEDIMENTS REMOVED FROM THE FACILITY AT AN ACCEPTABLE DISPOSAL AREA.

MANY FACTORS WILL AFFECT THE OPERATION OF AN INFILTRATION SYSTEM. ROUTINE INSPECTIONS AND MAINTENANCE SHOULD BE PERFORMED BY THE SAME ASSIGNED INDIVIDUAL IN ORDER TO ESTABLISH A BASELINE KNOWLEDGE OF HOW THE SYSTEM FUNCTIONS UNDER DIFFERENT SITE AND WEATHER CONDITIONS.

ROUTINELY INSPECT VEGETATED FILTERING STRIPS ADJACENT TO THE FACILITY. A HEALTHY STAND OF GRASS SHOULD BE MAINTAINED AT ALL TIMES. MOW THE FILTER STRIPS WITH LAWMOWERS AT HIGH SETTING TO ACHIEVE A CUT STAND OF GRASS 4 INCHES OR HIGHER. GRASS CLIPPINGS SHOULD BE BAGGED AS MOWING PROGRESSES SO CUTTINGS WILL NOT PLUG THE FILTER STONE AND FABRIC.

RECORD KEEPING. THE OWNER OR DESIGNATED REPRESENTATIVE SHALL KEEP REASONABLE, ACCURATE WRITTEN RECORDS OF INSPECTIONS PERFORMED FOR THE STRUCTURE. RECORDS SHALL DOCUMENT ROUTINE MAINTENANCE AND/OR REPAIRS PERFORMED. COPIES SHALL BE PROVIDED TO THE COUNTY UPON REQUEST.

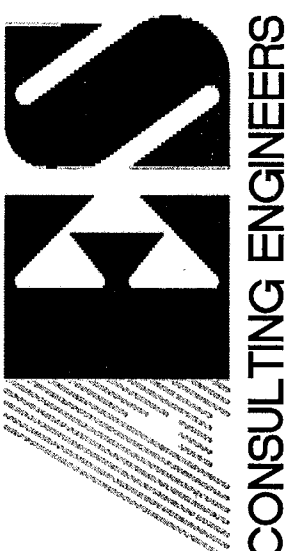
THE FACILITY SHALL NOT ACCEPT ADDITIONAL DRAINAGE OR BE MODIFIED IN ANY WAY WITHOUT PRIOR CONSENT OR APPROVAL BY THE ENVIRONMENTAL DIVISION OF JAMES CITY COUNTY.



NO.	DATE	REVISION / COMMENT / NOTE	BY

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ENVIRONMENTAL DIVISION

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994



BMP RECORD DRAWING
WEATHERCRAFTERS EXPANSION
JCC SP-140-00
JAMES CITY COUNTY
VIRGINIA

Designed MAR	Drawn MAR
Scale 1"=10'	Date 08/10/07
Project No. 7014-1	Drawing No. 1 OF 1

MAR 11:25:00-12:45 701401c02.dwg

AES CONSULTING ENGINEERS
Engineering, Surveying, and Planning
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

Phone: (757) 253-0040
Fax: (757) 220-8994

LETTER OF TRANSMITTAL

3910100012

ATTN: **Environmental Division**

CO.: JCC

Address:

cc: Jim Smith - Weathercrafters

DATE 8/16/07	JOB NO. 7014-01
FROM: Mark Richardson	
RE Weathercrafters Expansion Record Drawings	

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AUG 16 2007

ENVIRONMENTAL
DIVISION

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☒ Attached
☐ Under separate cover via

☐ Original(s) ☐ Print(s) ☐ Plan(s) ☐ Specification(s) ☐ Change Order
☐ Copy of letter(s) ☐ Other:

COPIES	DATE	No. of Pages	DESCRIPTION
3 1		1	Record Drawing BMP Certification (39-1)(1-12) → SP-140-99 SP-140-00 SP-07-03 Amend PC206

THESE ARE TRANSMITTED as checked below:

☒ For your approval ☐ For your signature ☐ For review and comment
☐ For your use ☐ As you requested ☐ As requested by:
☐ Other:

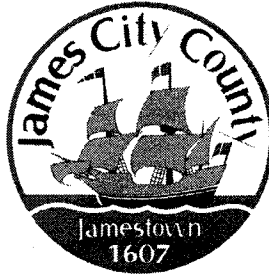
REMARKS:

Weathercrafters
125 Tennyson
23188

LOTS
TEWNING RD
H.D. COMM
PARIC

VIA: ☐ Hand Deliver ☐ UPS Ground ☐ UPS Next Day Air ☐ USPS Mail ☐ Other:

If enclosures are not as noted, kindly notify us at once.



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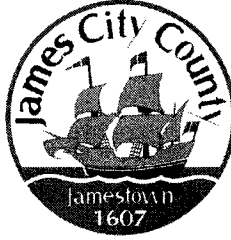
**James City County, Virginia
Environmental Division**

**Stormwater Management / BMP Facilities
Record Drawing and Construction Certification**

Standard Forms & Instructions

<u>Contents</u>	Page
Record Drawing and Construction Certification Forms	
Section 1 – Site Information	1
Section 2 – Construction Information	2
Section 3 – Owner / Designer / Contractor Information	2
Section 4 – Professional Certifications	3
Section 5 – Certification Requirements and Instructions	4
 Record Drawing Checklist	
I. Methods and Presentation (Required for All Facilities)	6
II. Minimum Standards (Required for All Facilities)	6
III. Group A – Wet Ponds	8
IV. Group B – Wetlands	9
V. Group C – Infiltration Practices	10
VI. Group D – Filtering Systems	11
VII. Group E – Open Channel Systems	12
VIII. Group F – Extended Dry Detention	13
IX. Group G – Open Spaces	14
X. Storm Drainage Systems (Associated with BMP's Only)	15
XII. Other Systems	15
XIII. References	16

*Issue Date
February 1, 2001*



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification Forms

(Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMP's shall be designed and constructed in accordance with the manual entitled James City County Guidelines for Design and Construction of Stormwater Management BMP's. Erosion and sediment control policy and approved plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project, including any Best Management Practice (BMP) facilities. In addition, for BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a Professional Engineer who has inspected the structure during its construction. Currently there are over 20 water quality type BMP's accepted by the County.)

Section 1 – Site Information:

Project Name: Weathercrafters Expansion
Structure/BMP Name: Infiltration Basin
Project Location: 128 Tewning Road
BMP Location: Rear of property
County Plan No.: SP - 140 - 00

Project Type: ☐ Residential ☐ Business Tax Map/Parcel No.: (39-1)(1-12)
☒ Commercial ☐ Office BMP ID Code (if known):
☐ Institutional ☐ Industrial Zoning District: M-1
☐ Public ☐ Roadway Land Use: HVAC Contractor
☐ Other Site Area (sf or acres): 1.0 acres

Brief Description of Stormwater Management/BMP Facility: Infiltration Basin to accept the stormwater runoff from the parking lot and warehouse.

Nearest Visible Landmark to SWM/BMP Facility: Weathercrafters and VDOT maintenance facility

Nearest Vertical Ground Control (if known):
☐ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☒ Arbitrary ☐ Other
Station Number or Name:
Datum or Reference Elevation:
Control Description:
Control Location from Subject Facility: _____

Section 2 – Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: ☒ Yes ☐ No ☐ Unknown
Approx. Construction Start Date for SWM/BMP Facility: May 1, 2007
Facility Monitored by County Representative during Construction: ☒ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed Facility: Property owner
Name of Professional Firm Who Routinely Monitored Construction: AES Consulting Engineers
Date of Completion for SWM/BMP Facility: July 30, 2007
Date of Record Drawing/Construction Certification Submittal: August 10, 2007

(Note: Record Drawing and Construction Certifications are required within thirty (30) days of the completion of Stormwater Management and/or BMP facility construction. Record Drawings and Construction Certifications must be reviewed and approved by the James City County Environmental Division prior to final inspection, acceptance and bond or surety release.)

Section 3 – Owner / Designer / Contractor Information:

Owner/Developer: *(Note: Site Owner or Applicant responsible for development of the project.)*

Name: Weathercrafters
Mailing Address: 128 Tewning Road
Williamsburg, VA 23188
Business Phone: 757-229-9889 Fax: _____
Contact Person: Jim Smith, Sr. Title: Owner

Design Professional: *(Note: Professional Engineer or Certified Land Surveyor responsible for the design and preparation of plans and specifications for the Stormwater Management / BMP facility.)*

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994
Responsible Plan Preparer: Mark Richardson, P.E.
Title: Senior Project Manager
Plan Name: Weathercrafters Expansion
Firm's Project No. 7014-01
Plan Date: 11/27/00
Sheet No.'s Applicable to SWM/BMP Facility: 2 / _____ / _____ / _____ / _____

BMP Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater Management / BMP facility.)*

Name: Owner
Mailing Address: _____
Business Phone: _____
Fax: _____
Contact Person: _____
Site Foreman/Supervisor: _____
Specialty Subcontractors & Purpose (for BMP Construction Only):
N/A

Section 4 – Professional Certifications:

Certifying Professionals: *(Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a Record Drawing, sometimes referred to as an As-Built plan, for the drainage system for the project including any Stormwater Management/BMP Facilities. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of Stormwater Management / BMP facilities during its construction.)*

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Mark Richardson, P.E.
Title: Senior Project Manager

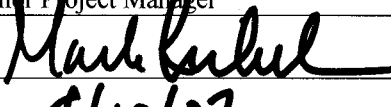
Signature: 
Date: 8/10/07

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

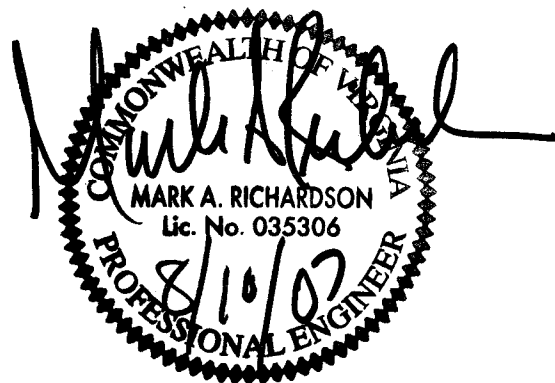
Construction Certification

Firm Name: AES Consulting Engineers
Mailing Address: 5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

Name: Mark Richardson, P.E.
Title: Senior Project Manager

Signature: 
Date: 8/10/07

I hereby certify to the best of my knowledge and belief that this Stormwater Management / BMP facility was monitored and constructed in accordance with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.



(Seal)

Virginia Registered Professional Engineer
Or Certified Land Surveyor

(Seal)

Virginia Registered
Professional Engineer

Section 5 – Record Drawing and Construction Certification Requirements and Instructions:

- ❑ PreConstruction Meeting – Provides an opportunity to review SWM / BMP facility construction, maintenance and operation plans and address any questions regarding construction and/or monitoring of the structure. The design engineer, certifying professionals (if different), Owner/Applicant, Contractor and County representative(s) are encouraged to attend the preconstruction meeting. Advanced notice to the Environmental Division is requested. Usually, this requirement can be met simultaneously with Erosion and Sediment Control preconstruction meetings held for the project.
- ❑ A fully completed ***STORMWATER MANAGEMENT / BMP FACILITIES, RECORD DRAWING and CONSTRUCTION CERTIFICATION FORM and RECORD DRAWING CHECKLIST***. All applicable sections shall be completed in their entirety and certification statements signed and sealed by the registered professional responsible for individual record drawing and/or construction certification.
- ❑ The Record Drawing shall be prepared by a Registered Professional Engineer or Certified Land Surveyor for the drainage system of the project including any Best Management Practices.
- ❑ Construction Certification. Construction of Stormwater Management / BMP facilities which contain impoundments, embankments and related engineered appurtenances including subgrade preparation, compacted soils, structural fills, liners, geosynthetics, filters, seepage controls, cutoffs, toe drains, hydraulic flow control structures, etc. shall be visually observed and monitored by a Registered Professional Engineer or his/her authorized representative. The Engineer must certify that the structure, embankment and associated appurtenances were built in accordance with the approved design plan, specifications and stormwater management plan and standard accepted construction practice and shall submit a written certification and/or drawings to the Environmental Division as required. Soil and compaction test reports, concrete test reports, inspection reports, logs and other required construction material or installation documentation may be required by the Environmental Division to substantiate the certification, if specifically requested. The Engineer shall have the authority and responsibility to make minor changes to the approved plan, in coordination with the assigned County inspector, in order to compensate for unsafe or unusual conditions encountered during construction such as those related to bedrock, soils, groundwater, topography, etc. as long as changes do not adversely affect the integrity of the structure(s). Major changes to the approved design plan or structure must be reviewed and approved by the original design professional and the James City County Environmental Division.
- ❑ Record Drawing and Construction Certifications are required within **thirty (30) days** of the completion of Stormwater Management / BMP facility construction. Submittals must be reviewed and accepted by James City County Environmental Division prior to final inspection, acceptance and bond/surety release.

Dual Purpose Facilities – Completion of construction also includes an interim stage for Stormwater Management / BMP facilities which serve dual purpose as temporary sediment basins during construction and as permanent stormwater management / BMP facilities following construction, once development and stabilization are substantially complete. For these dual purpose facilities, construction certification is required once the temporary sediment basin phase of construction is complete. Final record drawing and construction certification of additional permanent components is required once permanent facility construction is complete.

Interim Construction Certification is required for those dual purpose embankment-type facilities that are generally ten (10) feet or greater in dam height (*) and may not be converted, modified or begin function as a permanent SWM / BMP structure for a period generally ranging from six (6) to eighteen (18) months or more from issuance of a Land Disturbance permit for construction.

Interim or final record drawing and construction certifications are not required for temporary sediment basins which are designed and constructed in accordance with current minimum standards and specifications for temporary sediment basins per the Virginia Erosion and Sediment Control Handbook (VESCH); have a temporary service life of less than eighteen (18) months; and will be removed completely once associated disturbed areas are stabilized, unless a distinct hazard to the public's health, safety and welfare is determined by the Environmental Division due to the size or presence of the structure or due to evidence of improper construction.

(*Note: Dam Height as referenced above is generally defined as the vertical distance from the natural bed of the stream or waterway at the downstream toe of the embankment to the top of the embankment structure in accordance with 4VAC50-20-30, Virginia Impoundment Structure Regulations and the Virginia Dam Safety Program.)

- ☐ Record Drawings shall provide, at a minimum, all information as shown within these requirements and the attached **RECORD DRAWING CHECKLIST** specific to the type of SWM/BMP facility being constructed. Other additional record data may be formally requested by the James City County Environmental Division. *(Note: Refer to the current edition of the James City County Guidelines for Design and Construction of Stormwater Management BMP's manual for a complete list of acceptable BMP's. Currently there are over 20 acceptable water quality type BMP's accepted by the County.)*
- ☐ Record Drawings shall consist of blue/black line prints and a reproducible (mylar, sepia, diazo, etc.) set of the approved stormwater management plan including applicable plan views, profiles, sections, details, maintenance plans, etc. as related to the subject SWM / BMP facility. The set shall indicate "**RECORD DRAWING**" in large text in the lower right hand corner of each sheet with record elevations, dimensions and data drawn in a clearly annotated format and/or boxed beside design values. Approved design plan values, dimensions and data shall not be removed or erased. Drawing sheet revision blocks shall be modified as required to indicate record drawing status. Elevations to the nearest 0.1' are sufficiently accurate except where higher accuracy is needed to show positive drainage. Certification statements as shown in Section 4 of the Record Drawing and Construction Certification Form, *or similar forms thereof*, and professional signatures and seals, with dates matching that of the record drawing status in the revision or title block, are also required on all associated record drawing plans, prints or reproducibles.
- ☐ Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of bond/surety, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Environmental Division on a diskette or CD-ROM in an acceptable electronic file format such as *.dxf, *.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Environmental Division staff at the time of final submission.

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

I. Methods and Presentation: *(Required for all Stormwater Management / BMP facilities.)*

- XX 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.
- XX 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.
- XX 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner (Approved County Plan Number and BMP ID Code can be included if known).
- XX 4. All plans sheet revision blocks modified to indicate date and record drawing status.
- XX 5. All plan sheets have certification statements and certifying professional's signature and seal.

II. Minimum Standards: *(Required for all Stormwater Management / BMP facilities, as applicable.)*

- XX 1. All requirements of Section I (Methods and Presentation) apply to this section.
- XX 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- XX 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.
- XX 4. Top widths, berm widths and embankment side slopes.
- XX 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Environmental Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.
- N/A 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.
- N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
- N/A 8. Elevation of the principal spillway crest or outlet crest of the structure.

- | | | |
|------------|-----|---|
| <u>N/A</u> | 9. | Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc. |
| <u>XX</u> | 10. | Dimensions, locations and elevations of outlet orifices, weirs, slots and drains. |
| <u>N/A</u> | 11. | Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not. |
| <u>N/A</u> | 12. | Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. May need to obtain this information during construction. |
| <u>N/A</u> | 13. | Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. May need to obtain this information during construction. |
| <u>N/A</u> | 14. | Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert. |
| <u>N/A</u> | 15. | Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall. |
| <u>N/A</u> | 16. | Outfall protection dimension, type and depth of rock and if underlain filter fabric is present. |
| <u>XX</u> | 17. | BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan. |
| <u>XX</u> | 18. | Maintenance plan taken from approved design plan transposed onto record drawing set. |
| <u>N/A</u> | 19. | Fencing location and type, if applicable to facility. |
| <u>XX</u> | 20. | BMP vicinity properly cleaned of stockpiles and construction debris. |
| <u>XX</u> | 21. | No visual signs of erosion or channel degradation immediately downstream of facility. |
| <u>N/A</u> | 22. | Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility. |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

III. Group A – Wet Ponds (Includes A-1 Small Wet Ponds; A-2 Wet Ponds; A-3 Wet Ext Det Ponds.)

- | | | |
|------------|------|--|
| <u>N/A</u> | A1. | All requirements of Section II, Minimum Standards, apply to Group A facilities. |
| <u>N/A</u> | A2. | Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction. |
| <u>N/A</u> | A3. | Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep. |
| <u>N/A</u> | A4. | Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use. |
| <u>N/A</u> | A5. | Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes. |
| <u>N/A</u> | A6. | Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan. |
| <u>N/A</u> | A7. | Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V). |
| <u>N/A</u> | A8. | No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure. |
| <u>N/A</u> | A9. | Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility. |
| <u>N/A</u> | A10. | Low flow orifice has a non-clogging mechanism. |
| <u>N/A</u> | A11. | A pond drain pipe with valve was provided. |
| <u>N/A</u> | A12. | Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope. |
| <u>N/A</u> | A13. | End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard. |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

IV. Group B – Wetlands: *(Includes B-1 Shallow Marsh; B-2 Ext Det Shallow Wetlands; B-3 Pond Wetland System and B-4 Pocket Wetland).*

- | | | |
|------------|-----|--|
| <u>N/A</u> | B1. | Same requirements as Group A Wet Ponds. |
| <u>N/A</u> | B2. | Minimum 2:1 length to width flow path provided across the facility. |
| <u>N/A</u> | B3. | Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep). |
| <u>N/A</u> | B4. | Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps. |
| <u>N/A</u> | B5. | Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures). |
| <u>N/A</u> | B6. | No more than one-half (½) of the wetland surface area is planted. |
| <u>N/A</u> | B7. | Topsoil or wetland mulch provided to support vigorous growth of wetland plants. |
| <u>N/A</u> | B8. | Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation. |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

- V. Group C – Infiltration Practices** *(Includes C-1 Infiltration Trench; C-2 Infiltration Trench; C-3 Infiltration Basin; and C-4 Infiltration Basin)*
- XX C1. All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable.
 - XX C2. Facility is not located on fill slopes or on natural ground in excess of six (6) percent.
 - XX C3. Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures.
 - XX C4. Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate.
 - XX C5. Sides of infiltration practice lined with filter fabric.
 - XX C6. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
 - XX C7. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.
 - N/A C8. Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building.
 - XX C9. Minimum twenty-five (25) foot separation down gradient from any structure.
 - XX C10. Stormwater outfalls provided for overflow associated with larger design storms.
 - XX C11. No visual signs of erosion or channel degradation immediately downstream of facility.
 - XX C12. Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties.
 - XX C13. Observation well provided.
 - XX C14. Adequate, direct access provided to the facility for future maintenance, operation and inspection.

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

- VI. Group D – Filtering Systems** *Includes D-1 Bioretention Cells; D-2 Surface Sand Filters; D-3 Underground Sand Filters; D-4 Perimeter Sand Filters; D-5 Organic Filters; and D-6 Pocket Sand Filters)*
- N/A D1. All requirements of Section II, Minimum Standards, apply to Group D facilities.
- N/A D2. Sediment pretreatment devices provided.
- N/A D3. For D-1 BMPs (Bioretention Cells), pretreatment consisting of a grass filter strip below level spreader (deflector); a gravel diaphragm; and mulch and planting soil layers were provided.
- N/A D4. For D-1 BMPs (Bioretention Cells), plantings consist of native plant species; vegetation provided was based on zones of hydric tolerances; trees and understory of shrubs and herbaceous materials were provided; woody vegetation is absent from inflow locations; and trees are located around facility perimeter.
- N/A D5. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- N/A D6. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed.
- N/A D7. Filtering system is off-line from storm drainage conveyance system.
- N/A D8. Overflow outlet has adequate erosion protection.
- N/A D9. Deflector, diversion, flow splitter or regulator structure provided to divert the water quality volume to the filtering structure.
- N/A D10. Minimum four (4) inch perforated underdrain provided in a clean aggregate envelope layer beneath the facility.
- N/A D11. Minimum fifty (50) foot separation from any slope fifteen (15) percent or greater. Minimum one hundred (100) foot separation horizontally from any known water supply well. Minimum one hundred (100) foot separation upslope and twenty-five (25) foot separation downslope from any building.
- N/A D12. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.
- N/A D13. No visual signs of erosion or channel degradation immediately downstream of facility.
- N/A D14. Adequate, direct access provided to the pretreatment area and/or filter bed for future maintenance.

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

- VII. Group E – Open Channel Systems** *(Includes E-1 Wet Swales (Check Dams); E-2 Dry Swales; and E-3 Biofilters)*
- | | | |
|------------|------|--|
| <u>N/A</u> | E1. | All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable. |
| <u>N/A</u> | E2. | Open channel system has constructed longitudinal slope of less than four (4) percent. |
| <u>N/A</u> | E3. | No visual signs of erosion in the open channel system's soil and/or vegetative cover. |
| <u>N/A</u> | E4. | Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter. |
| <u>N/A</u> | E5. | No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales). |
| <u>N/A</u> | E6. | For E-2 BMPs (Dry Swales), an underdrain system was provided. |
| <u>N/A</u> | E7. | Treated timber or rock check dams provided as pretreatment devices for the open channel system. |
| <u>N/A</u> | E8. | Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system. |
| <u>N/A</u> | E9. | Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system. |
| <u>N/A</u> | E10. | Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed. |
| <u>N/A</u> | E11. | Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction. |
| <u>N/A</u> | E12. | No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated. |
| <u>N/A</u> | E13. | For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location. |
| <u>N/A</u> | E14. | For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location. |
| <u>N/A</u> | E15. | For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location. |
| <u>N/A</u> | E16. | For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length. |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

VIII. Group F – Extended Dry Detention *(Includes F-1 Timber Walls; and F-2 Dry Extended Detention with Forebay)*

- | | | |
|------------|------|---|
| <u>N/A</u> | F1. | All requirements of Section II, Minimum Standards, apply to Group F facilities. |
| <u>N/A</u> | F2. | Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location. |
| <u>N/A</u> | F3. | Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.) |
| <u>N/A</u> | F4. | Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth. |
| <u>N/A</u> | F5. | A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging |
| <u>N/A</u> | F6. | Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction. |
| <u>N/A</u> | F7. | Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging. |
| <u>N/A</u> | F8. | Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack. |
| <u>N/A</u> | F9. | Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive. |
| <u>N/A</u> | F10. | Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation. |
| <u>N/A</u> | F11. | Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided. |
| <u>N/A</u> | F12. | Stilling basin or standard outlet protection provided at principal spillway outlet. |
| <u>N/A</u> | F13. | Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable. |
| <u>N/A</u> | F14. | No visual signs of undercutting of timber walls or clogging of the low orifice were present. |
| <u>N/A</u> | F15. | No visual signs of erosion or channel degradation immediately downstream of facility. |
| <u>N/A</u> | F16. | No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated. |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

IX. Group G – Open Spaces *(Includes All Open Space Types G-1; G-2; and G-3)*

- | | | |
|------------|-----|---|
| <u>N/A</u> | G1. | All requirements of Section II, Minimum Standards, apply to Group G facilities as applicable. |
| <u>N/A</u> | G2. | Constructed impervious areas appear to conform with locations indicated on the approved plan and appear less than sixty (60) percent impervious in accordance with the requirements of the James City County Chesapeake Bay Preservation Ordinance. |
| <u>N/A</u> | G3. | Dedicated open space areas are in undisturbed common areas, conservation easements or are protected by other enforceable instruments that ensures perpetual protection. |
| <u>N/A</u> | G4. | Provisions included to clearly specify how the natural vegetated areas utilized as dedicated open space will be managed and field identified (marked). |
| <u>N/A</u> | G5. | Adequate protection measures were implemented during construction to protect the defined dedicated open space areas. |
| <u>N/A</u> | G6. | Dedicated open space areas were not disturbed during construction (ie. cleared, grubbed or graded). |

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

(Key for Checklist is as follows: XX Acceptable N/A Not Applicable Inc Incomplete)

X. Storm Drainage Systems (Associated with BMP's Only)

(Includes all incidental stormwater drainage conveyance systems associated with SWM/BMP facilities such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. These facilities are external to the treatment function of, but are directly associated with drainage to and/or from a constructed SWM/BMP facility. The intent of this portion of the certification is to accurately identify the type and quantity of inflow or outflow points associated with the facility for future reference. The Professional may use his/her own discretion to determine inclusive facilities to meet the intent of this section. As a general rule, storm drainage systems would include incidental facilities to the nearest access structure upslope or downslope from the normal physical limits of the facility or 800 feet of storm drainage conveyance system length, whichever is less.)

- N/A SD1. All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.
- N/A SD2. Horizontal location of all pipe and structures relative to the SWM/BMP facility.
- N/A SD3. Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).
- N/A SD4. Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.
- N/A SD5. Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

XII. Other Systems

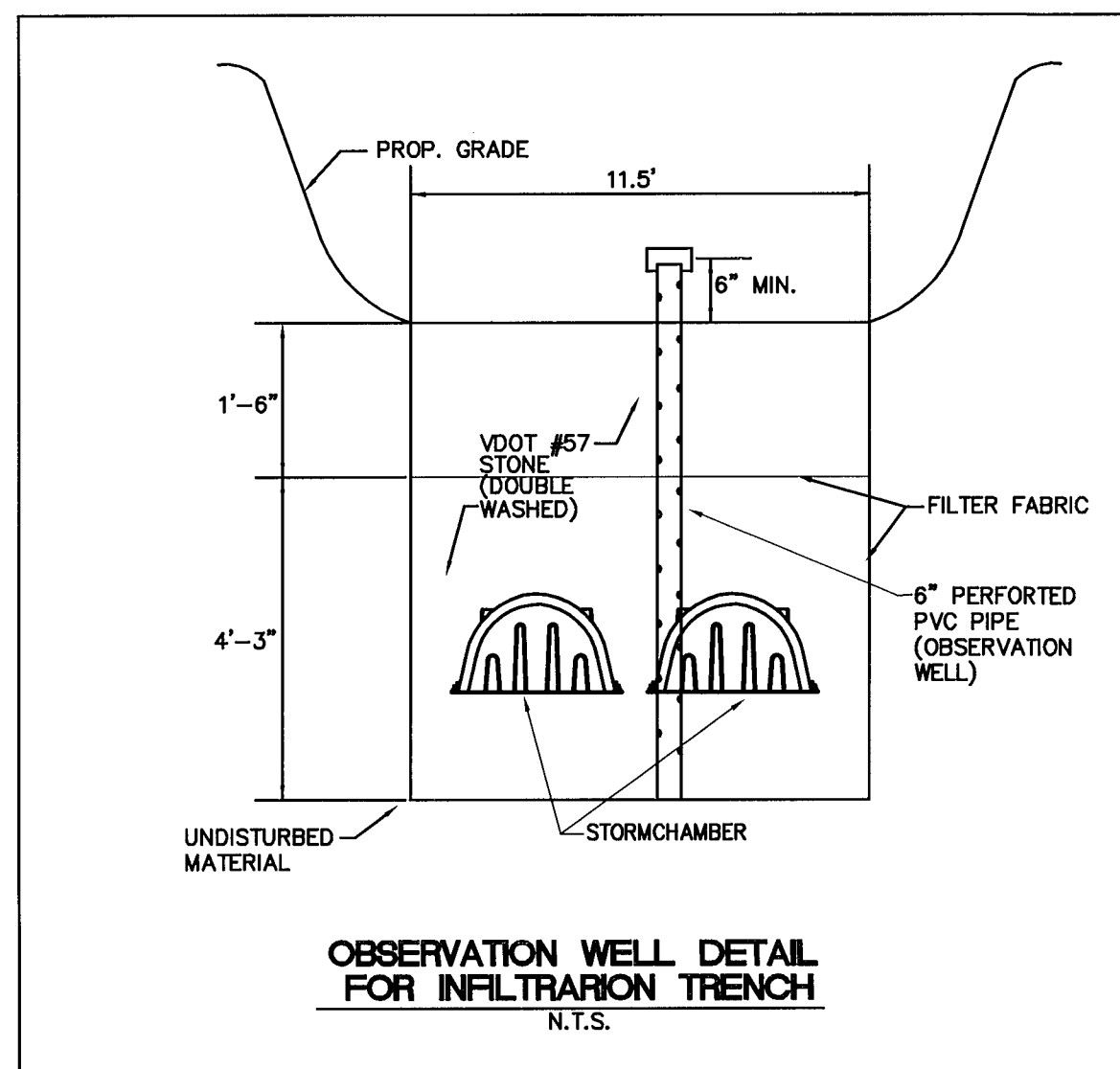
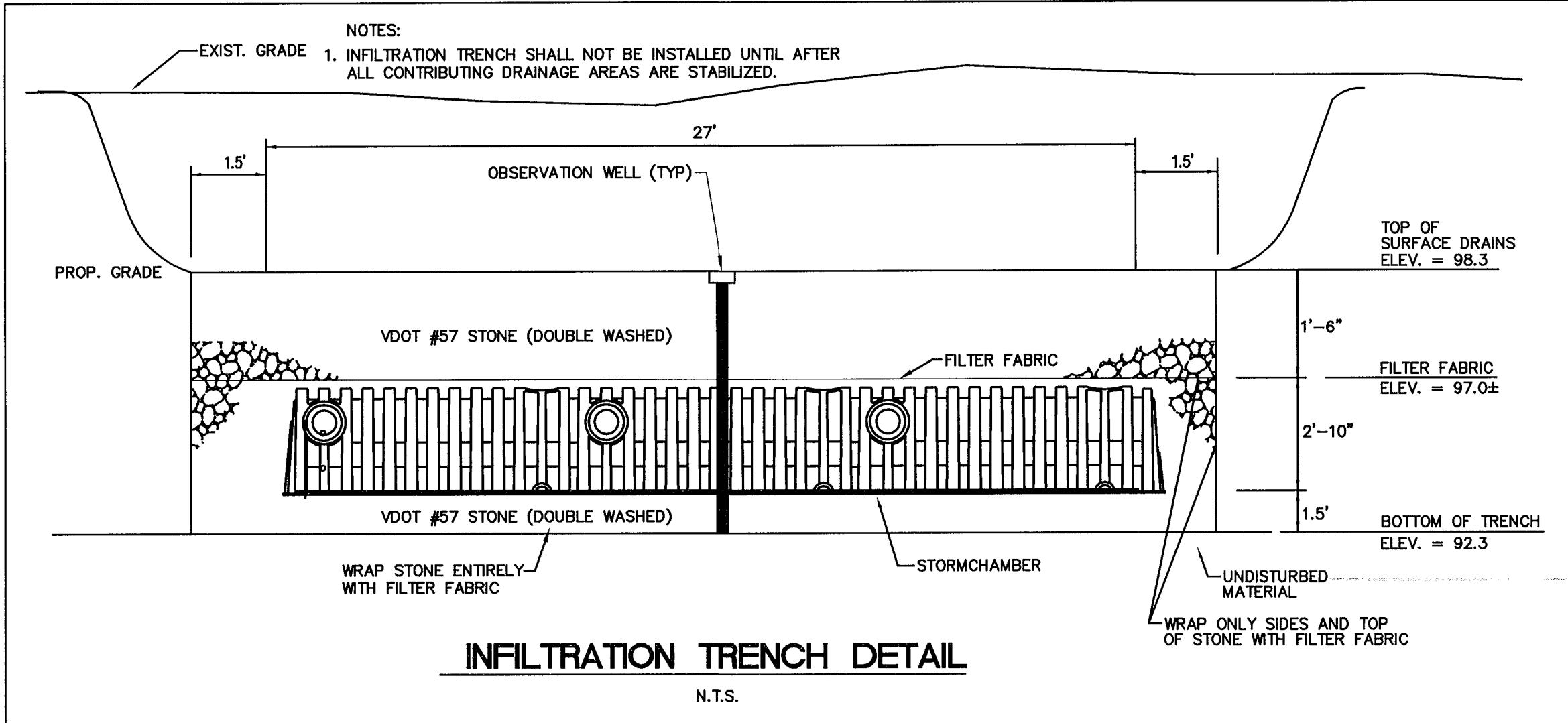
(Includes any non-typical, specialty, manufactured or innovative stormwater management/BMP practices or systems generally accepted for use as or in conjunction with other acceptable stormwater management / BMP practices. Requires evidence of prior satisfactory industry use and prior Environmental Division approval, waiver or exception.)

- N/A O1. All requirements of Section II, Minimum Standards, apply to this section.
- N/A O2. Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

XIII. References *(The James City County Record Drawing and Construction Certification Forms and Checklists for Stormwater Management / BMP facilities were developed using the following sources and references.)*

- ☐ Baltimore County, Maryland Soil Conservation District, As-Built Stormwater Management Pond Checklist.
- ☐ James City County, Virginia, Guidelines for Design and Construction of Stormwater Management BMP's (October 1999.)
- ☐ James City County, Virginia, Stormwater Detention/Retention Basin Design Checklist and Erosion and Sediment Control and Stormwater Management Design Plan Checklists.
- ☐ James City County Stormwater Policy Framework, Final Report of the James City County BMP Policy Project, October 1998, The Center for Watershed Protection.
- ☐ Prince Georges County, Maryland, As-Built Requirements Retention or Detention Pond/Basin.
- ☐ Prince William County, Virginia, Stormwater Management Fact Sheet.
- ☐ Stafford County, Virginia As-Built Plan Checklist.
- ☐ Stormwater Management Design Manual, NRCS Maryland Code No. 378, Pond Standards and Specifications.
- ☐ USEPA/Watershed Management Institute, Stormwater Management Inspection Forms.
- ☐ Virginia Impounding Structure Regulations (Dam Safety), Department of Conservation & Recreation, 1997.
- ☐ Virginia Erosion and Sediment Control Handbook, Third Edition 1992, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.
- ☐ Virginia Stormwater Management Handbook, 1999 edition, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.



INFILTRATION TRENCH MAINTENANCE REQUIREMENTS

THE FOLLOWING IS A MAINTENANCE PROGRAM FOR THE INFILTRATION TRENCH FOR THE WEATHERCRAFTERS EXPANSION. THE TRENCH SERVES 0.24 ACRES AT THE WEATHERCRAFTERS SITE ON TOWNING ROAD IN JAMES CITY COUNTY, VIRGINIA. THE FACILITY IS A 10 POINT COUNTY TYPE C-2 BMP. IT IS DESIGNED TO ENSURE PEAK RUNOFF FROM THE 2- AND 10- YEAR DESIGN FREQUENCY STORM EVENTS WERE NOT INCREASED DUE TO DEVELOPMENT OF THE SITE AND TO ENSURE WATER QUALITY CRITERIA IS MET.

THE MAINTENANCE PROGRAM IS REQUIRED TO ENSURE THE STORMWATER MANAGEMENT / BEST MANAGEMENT PRACTICE (BMP) INFILTRATION FACILITY FUNCTIONS AS DESIGNED AND TO PROVIDE FOR REASONABLE AESTHETIC CONDITIONS. PROPER MAINTENANCE IS ENCOURAGED TO PREVENT THE INTRODUCTION OF DEBRIS AND SEDIMENT INTO PRETREATMENT AREAS, THE BMP INFILTRATION AREA AND DOWNSTREAM WATERWAYS.

FOLLOWING INSTALLATION AND ESTABLISHMENT OF VEGETATION IN DISTURBED SITE AREAS, INSPECTIONS FOR SEDIMENT BUILDUPS SHALL BE PERFORMED AT LEAST QUARTERLY. IT IS ANTICIPATED THAT UNDER NORMAL CONDITIONS, SEDIMENT REMOVAL WILL BE REQUIRED ONCE PER YEAR. IF OTHER CONSTRUCTION OR RELATED LAND-DISTURBING ACTIVITIES ARE PERFORMED UPSLOPE OF THE BMP, ADEQUATE PROTECTION MEASURES SHOULD BE IMPLEMENTED WITH INSPECTIONS PERFORMED AT LEAST ONCE WEEKLY.

THE OWNER OR DESIGNATED REPRESENTATIVE WILL INSPECT THE SWM/BMP STRUCTURE AFTER EACH SIGNIFICANT RAINFALL EVENT OR THE FOLLOWING WORKING DAY IF A WEEKEND OR HOLIDAY OCCURS. A SIGNIFICANT RAINFALL FOR THIS STRUCTURE IS DEFINED AS ONE (1) INCH OR MORE OF GAUGED RAINFALL WITHIN A 24-HOUR PERIOD. ONCE PER YEAR (MORE OR LESS) A REPRESENTATIVE OF THE COUNTY MAY JOINTLY INSPECT THE STRUCTURE. APPROPRIATE ACTION, PERFORMED AT THE COST OF THE OWNER WILL BE TAKEN TO ENSURE APPROPRIATE MAINTENANCE. WHERE STRUCTURES ARE TO BE MAINTAINED JOINTLY, ALLOCATION OF MAINTENANCE COSTS WILL BE IN ACCORDANCE WITH TERMS ESTABLISHED IN MAINTENANCE AGREEMENTS. KEYS TO LOCKED ACCESS POINTS OR STRUCTURES SHALL BE MADE AVAILABLE TO THE COUNTY UPON REQUEST.

CHECK OBSERVATION WELLS IMMEDIATELY AFTER A SIGNIFICANT RAINFALL EVENT HAS CEASED OR ITS INTENSITY HAS SLOWED. IF THE TRENCH IS FULL OF STORMWATER RUNOFF, WATER SHOULD BE WITHIN THE FILTER STONE ZONES. IF THE OVERFLOW CHANNEL IS CONVEYING RUNOFF AND THE WATER LEVEL IN THE TRENCH IS RELATIVELY LOW, IT IS LIKELY THAT THE SURFACE LAYERS OF THE FILTERING STONE OR THE FILTER FABRIC ARE CLOGGED. IF THIS CONDITION IS PRESENT, THE TOP LAYERS OF THE FILTERING STONE AND FILTER FABRIC SHOULD BE REPLACED WITH CLEAN MATERIAL.

CHECK OBSERVATION WELLS 2 TO 3 DAYS FOLLOWING A SIGNIFICANT RAINFALL EVENT. IF STORMWATER IS PRESENT IN THE BOTTOM OF THE WELLS, COMPLETE REPLACEMENT OF THE FILTERING STONE AND FILTER FABRIC IS NECESSARY. ALTHOUGH THE LOCATION OF THE SEASONAL WATER TABLE SHOULD HAVE BEEN IDENTIFIED AS BELOW THE FACILITY DURING DESIGN, CARE SHOULD BE TAKEN TO ENSURE WATER PRESENT AT THE BOTTOM OF THE WELLS IS NOT DUE TO A HIGH GROUNDWATER TABLE RATHER THAN NON-OPERATION OF THE INFILTRATION SYSTEM. FOR EXAMPLE, IF THERE IS WATER IN THE OBSERVATION WELLS 48 HOURS FOLLOWING A RAINFALL EVENT IN THE SPRING APRIL-MAY, BUT NOT IN THE SUMMER JULY-AUGUST, THE SEASONAL HIGH WATER TABLE MAY BE HIGHER THAN ORIGINALLY ANTICIPATED.

1. IMMEDIATELY REMOVE TRASH, DEBRIS OR SEDIMENT THAT PREVENTS THE MOVEMENT OF WATER AND TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AND PROVIDE FOR AN ATTRACTIVE APPEARANCE. PROPER MAINTENANCE MEASURES INCLUDING THE REMOVAL OF TRASH, LITTER AND SEDIMENT FROM SURROUNDING GRASS, PARKING AND STABILIZED CONTRIBUTING AREAS SHOULD BE PERFORMED WEEKLY TO PREVENT MIGRATION INTO THE BMP. DURING WINTER, KEEP SNOW REMOVAL MATERIALS SUCH AS SAND, SALT OR CINDERS AWAY FROM THE INFILTRATION AREA TO THE GREATEST EXTENT POSSIBLE. TRASH AND LITTER COLLECTION IS ENCOURAGED DAILY AROUND THE BMP. DISPOSE OF SEDIMENTS REMOVED FROM THE FACILITY AT AN ACCEPTABLE DISPOSAL AREA.

MANY FACTORS WILL AFFECT THE OPERATION OF AN INFILTRATION SYSTEM. ROUTINE INSPECTIONS AND MAINTENANCE SHOULD BE PERFORMED BY THE SAME ASSIGNED INDIVIDUAL IN ORDER TO ESTABLISH A BASELINE KNOWLEDGE OF HOW THE SYSTEM FUNCTIONS UNDER DIFFERENT SITE AND WEATHER CONDITIONS.

ROUTINELY INSPECT VEGETATED FILTERING STRIPS ADJACENT TO THE FACILITY. A HEALTHY STAND OF GRASS SHOULD BE MAINTAINED AT ALL TIMES. MOW THE FILTER STRIPS WITH LAWMOWERS AT HIGH SETTING TO ACHIEVE A CUT STAND OF GRASS 4 INCHES OR HIGHER. GRASS CLIPPINGS SHOULD BE BAGGED AS MOWING PROGRESSES SO CUTTINGS WILL NOT PLUG THE FILTER STONE AND FABRIC.

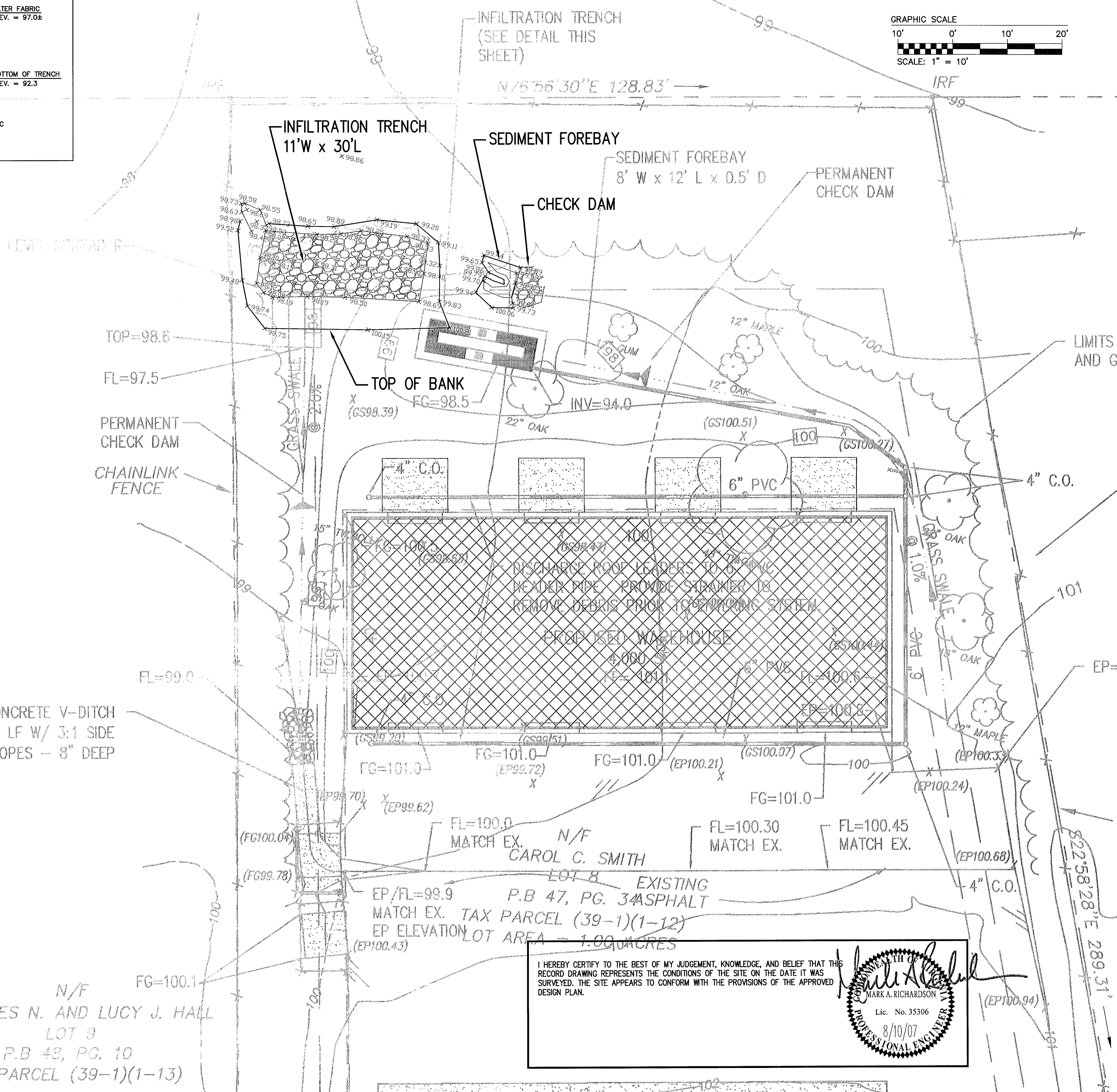
RECORD KEEPING. THE OWNER OR DESIGNATED REPRESENTATIVE SHALL KEEP REASONABLE, ACCURATE WRITTEN RECORDS OF INSPECTIONS PERFORMED FOR THE STRUCTURE. RECORDS SHALL DOCUMENT ROUTINE MAINTENANCE AND/OR REPAIRS PERFORMED. COPIES SHALL BE PROVIDED TO THE COUNTY UPON REQUEST.

THE FACILITY SHALL NOT ACCEPT ADDITIONAL DRAINAGE OR BE MODIFIED IN ANY WAY WITHOUT PRIOR CONSENT OR APPROVAL BY THE ENVIRONMENTAL DIVISION OF JAMES CITY COUNTY.

CONCRETE V-DITCH
20 LF W/ 3:1 SIDE
SLOPES - 8" DEEP

N/F
CHARLES N. AND LUCY J. HALL
LOT 9
P.B 43, PG. 10
TAX PARCEL (39-1)(1-13)

N/F
EASTERN STATE HOSPITAL
D.B. 34, PG. 375
TAX PARCEL (39-1)(1-152)



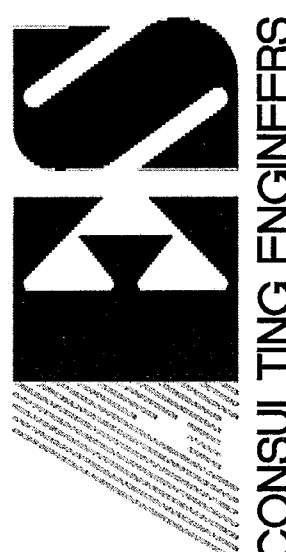
I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE CONDITIONS OF THE SITE ON THE DATE IT WAS SURVEYED. THE SITE APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN.

8/10/07
MARK A. RICHARDSON
Lic. No. 35306
PROFESSIONAL ENGINEER

NO.	DATE	REVISION / COMMENT / NOTE	BY

RECEIVED
AUG 16 2007
ENVIRONMENTAL
DIVISION

5248 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994



VIRGINIA
JAMES CITY COUNTY

BMP RECORD DRAWING		WEATHERCRAFTERS EXPANSION	
Designed MAR	Drawn MAR	Project No. 7014-1	Drawing No. 1 OF 1
Scale 1"=10'	Date 08/10/07	JCC SP-140-00	

RECORD DRAWING-8/10/2007

BMP REQUIREMENTS

DESIGN #2 \Rightarrow 1.0 in./imp. acre \rightarrow 10 POINTS
IMPERVIOUS AREA = 0.13 AC \approx 5,662 sf
1.0 in \approx 0.08 ft \Rightarrow 5,662 sf \times 0.08 ft = 452 cu ft

STORAGE
REQUIRED

USE (2) 24" HDPE PERFORATED PIPES, 23 FT LONG

STONE VOID RATIO = 40%

PIPE STORAGE = 12.6 cu ft

TOTAL STORAGE = 525 cu ft

* 525 cu ft $>$ 452 cu ft (REQUIRED STORAGE) \Rightarrow MEETS BMP REQUIREMENT

* 525 cu ft $>$ 400 cu ft (10 YR STORM VOLUME) \Rightarrow TRENCH CONTAINS POST 10 YR RUNOFF

March 1, 2000

Charles Records
AES Consulting Engineers
5248 Olde Towne Road, Suite 1
Williamsburg, VA 23188

P.O. Box 78
3740 West Hundred Road
Chester, VA 2383
804-796-391
fax 804-796-109

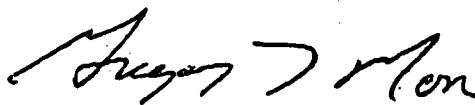
Re: Initial Feasibility Testing for Infiltration Trench
Weathercrafters
128 Tewning Road
Williamsburg VA

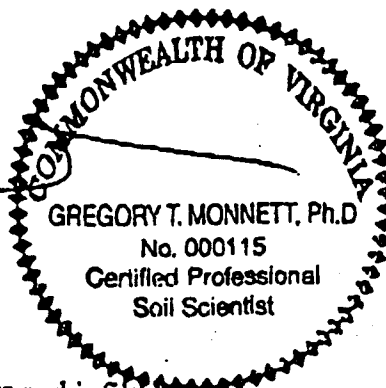
Dear Mr. Records:

Per your request I have completed a soils evaluation of the proposed infiltration trench location at the referenced site. Two soil borings were conducted to a depth of 10 feet. The boring locations are shown on the attached sketch. The boring profile descriptions are also attached in Table 1. The soils observed are well drained Coastal Plain sediments with a heavy sandy clay loam to clay loam surface layer underlain by sandy friable sediments. There were no indicators of a seasonal water table or any free water observed in the borings. Table 1 also lists the estimated infiltration rate of each soil horizon based on texture and consistency. The estimated infiltration rates of the soil ranged between 4 and 1.3 inches per hour depending upon the soil horizon.

If you have any questions feel free to contact me.

Sincerely,


Gregory T. Monnett, Ph.D., CPSS
Certified Professional Soil Scientist
Certification No. 000115



Attachments: Table 1- Soil boring logs and infiltration rates
Site Sketch



MAPPING, INTERPRETATION AND EVALUATION OF SOIL
FOR LAND USE

Table 1
Profile Description
Soil Evaluation Form

Date of Evaluation 02/21/2000

Evaluation by: G. Monnett, Ph.D

Page 1 of 1

Weathercrafters, 128 Tewning Road

Hole No.	Horizon	Depth (Inches)	Description of: Color; Texture; Etc.	Estimated Infiltration Rate (in/hr)
1	Ap	0-4	Brown; sandy loam.	4
	E	4-12	Yellowish-brown; light sandy clay loam.	2
	B	12-36	Strong brown; heavy sandy clay loam.	1.3
	BC	36-60	Strong brown with common pale yellow and faint yellowish-red mottles; light sandy clay loam.	2
	C	60-84	Strong brown; sandy loam.	1.7
	C	84-108	Mixed strong brown with common pale brown, white and yellowish-red; sandy loam.	1.7
	C	108-120	Strong brown with common yellowish-red and pale brown; loamy sand.	3
2	Ap	0-4	Brown; sandy loam.	4
	E	4-18	Light yellowish-brown; sandy loam.	4
	B	18-34	Strong brown with few yellowish-brown; light clay loam.	1
	BC	34-84	Yellowish-brown with common pale yellow, yellow and yellowish-red mottles; sandy clay loam.	2
	C	84-120	Mixed yellow with common pale brown and few white and yellowish-red; sandy loam to loamy sand (dry).	2-3

Remarks: Report #3738.

7014-1
WEATHERCRAFTERS

INFILTRATION TRENCH VOLUME

Pipe Diameter

24 in ▼

Pipe Length

20 ft ▼

of Pipes

2 ▼

Pipe Volume

126 cu ft

Side Clearance

1.0 ft ▼

Cover

18 in ▼

Base

18 in ▼

Distance Between Pipes

3.0 ft

Stone Void Ratio

40%

TOTAL STORAGE

525 cu ft

TOTAL HEIGHT OF TRENCH =

5.0 ft

TOTAL WIDTH OF TRENCH =

9.0 ft

TOTAL LENGTH OF TRENCH =

23.0 ft

3.14 SF
ft.

Weathercrafters Expansion
Ditch Calculations

tmp#1.txt

2 yr Storm

Given Input Data:

Shape Advanced
Solving for Depth of Flow
Flowrate 1.2100 cfs
Slope 0.0200 ft/ft
Manning's n 0.0200
Height 1.0000 ft
Bottom width 0.0000 ft
Left radius 0.0000 ft
Right radius 0.0000 ft
Left slope 0.3300 ft/ft (V/H)
Right slope 0.3300 ft/ft (V/H)

Computed Results:

Depth 0.3534 ft
Velocity 3.1968 fps
Full Flowrate 19.3793 cfs
Flow area 0.3785 ft²
Flow perimeter 2.2556 ft
Hydraulic radius 0.1678 ft
Top width 2.1419 ft
Area 3.0303 ft²
Perimeter 6.3821 ft
Percent full 35.3421 %

Weathercrafters Expansion
Ditch Calculations

tmp#1.bt

10 yr storm

Given Input Data:

Shape Advanced
Solving for Depth of Flow
Flowrate 1.5600 cfs
Slope 0.0200 ft/ft
Manning's n 0.0200
Height 1.0000 ft
Bottom width 0.0000 ft
Left radius 0.0000 ft
Right radius 0.0000 ft
Left slope 0.3300 ft/ft (V/H)
Right slope 0.3300 ft/ft (V/H)

Computed Results:

Depth 0.3887 ft
Velocity 3.4064 fps
Full Flowrate 19.3793 cfs
Flow area 0.4580 ft²
Flow perimeter 2.4810 ft
Hydraulic radius 0.1846 ft
Top width 2.3561 ft
Area 3.0303 ft²
Perimeter 6.3821 ft
Percent full 38.8749 %

Hydrograph Summary Report

Page 1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	1.2	1	13	903	2	—	—	—	2 YR PRE DEV
2	Rational	1.6	1	13	1,223	10	—	—	—	10 YR PRE DEV
3	Rational	1.2	1	5	363	2	—	—	—	DA-1 2 YR POST DEV
4	Rational	1.6	1	5	468	10	—	—	—	DA-1 10 YR POST DE
5	Rational	0.7	1	7	305	2	—	—	—	DA-2 2 YR POST DEV
6	Rational	1.0	1	7	400	10	—	—	—	DA-2 10 YR POST DE
8	Reservoir	0.0	1	14	305	2	5	95.92	299	DA-2 2YR ROUTED
9	Reservoir	0.0	1	14	399	10	6	96.99	393	DA-2 10YR ROUTED
Proj. file: 02_701401PND.GPW				IDF file: JCChydrographs.IDF				Run date: 11-28-2000		

Hydrograph Report

Page 1

English

Hyd. No. 1

2 YR PRE DEV

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 0.6 ac
Intensity = 4.02 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 1.16 cfs
Time interval = 1 min
Runoff coeff. = 0.48
Time of conc. (Tc) = 13 min
Reced. limb factor = 1

Total Volume = 903 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.03	0.18
0.20	1.07
0.37	0.36

...End

Hydrograph Report

Page 1

English

Hyd. No. 2

10 YR PRE DEV

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 0.6 ac
Intensity = 5.44 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 1.57 cfs
Time interval = 1 min
Runoff coeff. = 0.48
Time of conc. (Tc) = 13 min
Reced. limb factor = 1

Total Volume = 1,223 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.03	0.24
0.20	1.45
0.37	0.48

...End

Hydrograph Report

Page 1

English

Hyd. No. 3

DA-1 2 YR POST DEV

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 0.3 ac
Intensity = 5.53 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 1.21 cfs
Time interval = 1 min
Runoff coeff. = 0.73
Time of conc. (Tc) = 5 min
Reced. limb factor = 1

Total Volume = 363 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02 0.24

...End

Hydrograph Report

Page 1

English

Hyd. No. 4

DA-1 10 YR POST DEV

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 0.3 ac
Intensity = 7.13 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 1.56 cfs
Time interval = 1 min
Runoff coeff. = 0.73
Time of conc. (Tc) = 5 min
Reced. limb factor = 1

Total Volume = 468 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02 0.31

...End

Hydrograph Report

Page 1

English

Hyd. No. 5

DA-2 2 YR POST DEV

Hydrograph type = Rational
Storm frequency = 2 yrs
Drainage area = 0.2 ac
Intensity = 5.05 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 0.73 cfs
Time interval = 1 min
Runoff coeff. = 0.6
Time of conc. (Tc) = 7 min
Reced. limb factor = 1

Total Volume = 305 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	0.10
0.18	0.31

...End

Hydrograph Report

Page 1

English

Hyd. No. 6

DA-2 10 YR POST DEV

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 0.2 ac
Intensity = 6.61 in
I-D-F Curve = JCChydrographs.IDF

Peak discharge = 0.95 cfs
Time interval = 1 min
Runoff coeff. = 0.6
Time of conc. (Tc) = 7 min
Reced. limb factor = 1

Total Volume = 400 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	0.14
0.18	0.41

...End

Hydrograph Report

Page 1

English

Hyd. No. 8

DA-2 2YR ROUTED

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Inflow hyd. No. = 5
Max. Elevation = 95.92 ft

Peak discharge = 0.01 cfs
Time interval = 1 min
Reservoir name = Infiltration Tr
Max. Storage = 299 cuft

Storage Indication method used.

Total Volume = 305 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
0.17	0.42	95.38	0.01	---	---	---	---	---	---	---	0.01
0.33	0.00	95.87	0.01	---	---	---	---	---	---	---	0.01
0.50	0.00	95.79	0.01	---	---	---	---	---	---	---	0.01
0.67	0.00	95.71	0.01	---	---	---	---	---	---	---	0.01
0.83	0.00	95.63	0.01	---	---	---	---	---	---	---	0.01
1.00	0.00	95.55	0.01	---	---	---	---	---	---	---	0.01
1.17	0.00	95.47	0.01	---	---	---	---	---	---	---	0.01
1.33	0.00	95.39	0.01	---	---	---	---	---	---	---	0.01
1.50	0.00	95.32	0.01	---	---	---	---	---	---	---	0.01
1.67	0.00	95.24	0.01	---	---	---	---	---	---	---	0.01
1.83	0.00	95.17	0.01	---	---	---	---	---	---	---	0.01
2.00	0.00	95.10	0.01	---	---	---	---	---	---	---	0.01
2.17	0.00	95.02	0.01	---	---	---	---	---	---	---	0.01
2.33	0.00	94.95	0.01	---	---	---	---	---	---	---	0.01
2.50	0.00	94.88	0.01	---	---	---	---	---	---	---	0.01
2.67	0.00	94.81	0.01	---	---	---	---	---	---	---	0.01
2.83	0.00	94.75	0.01	---	---	---	---	---	---	---	0.01
3.00	0.00	94.68	0.01	---	---	---	---	---	---	---	0.01
3.17	0.00	94.62	0.01	---	---	---	---	---	---	---	0.01
3.33	0.00	94.55	0.01	---	---	---	---	---	---	---	0.01
3.50	0.00	94.49	0.01	---	---	---	---	---	---	---	0.01
3.67	0.00	94.42	0.01	---	---	---	---	---	---	---	0.01
3.83	0.00	94.36	0.01	---	---	---	---	---	---	---	0.01
4.00	0.00	94.30	0.01	---	---	---	---	---	---	---	0.01
4.17	0.00	94.24	0.01	---	---	---	---	---	---	---	0.01
4.33	0.00	94.18	0.01	---	---	---	---	---	---	---	0.01
4.50	0.00	94.13	0.01	---	---	---	---	---	---	---	0.01
4.67	0.00	94.07	0.01	---	---	---	---	---	---	---	0.01
4.83	0.00	94.02	0.01	---	---	---	---	---	---	---	0.01
5.00	0.00	93.96	0.01	---	---	---	---	---	---	---	0.01
5.17	0.00	93.91	0.01	---	---	---	---	---	---	---	0.01
5.33	0.00	93.86	0.01	---	---	---	---	---	---	---	0.01
5.50	0.00	93.80	0.01	---	---	---	---	---	---	---	0.01
5.67	0.00	93.75	0.01	---	---	---	---	---	---	---	0.01
5.83	0.00	93.71	0.01	---	---	---	---	---	---	---	0.01
6.00	0.00	93.66	0.01	---	---	---	---	---	---	---	0.01

Continues on next page...

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
6.17	0.00	93.61	0.01	---	---	---	---	---	---	---	0.01
6.33	0.00	93.56	0.01	---	---	---	---	---	---	---	0.01
6.50	0.00	93.52	0.01	---	---	---	---	---	---	---	0.01
6.67	0.00	93.47	0.01	---	---	---	---	---	---	---	0.01
6.83	0.00	93.43	0.01	---	---	---	---	---	---	---	0.01
7.00	0.00	93.39	0.01	---	---	---	---	---	---	---	0.01
7.17	0.00	93.35	0.01	---	---	---	---	---	---	---	0.01
7.33	0.00	93.31	0.01	---	---	---	---	---	---	---	0.01
7.50	0.00	93.27	0.01	---	---	---	---	---	---	---	0.01
7.67	0.00	93.23	0.01	---	---	---	---	---	---	---	0.01
7.83	0.00	93.20	0.01	---	---	---	---	---	---	---	0.01
8.00	0.00	93.16	0.01	---	---	---	---	---	---	---	0.01
8.17	0.00	93.12	0.01	---	---	---	---	---	---	---	0.01
8.33	0.00	93.09	0.00	---	---	---	---	---	---	---	0.00
8.50	0.00	93.06	0.00	---	---	---	---	---	---	---	0.00
8.67	0.00	93.03	0.00	---	---	---	---	---	---	---	0.00
8.83	0.00	93.00	0.00	---	---	---	---	---	---	---	0.00
9.00	0.00	92.97	0.00	---	---	---	---	---	---	---	0.00
9.17	0.00	92.94	0.00	---	---	---	---	---	---	---	0.00
9.33	0.00	92.92	0.00	---	---	---	---	---	---	---	0.00
9.50	0.00	92.90	0.00	---	---	---	---	---	---	---	0.00
9.67	0.00	92.87	0.00	---	---	---	---	---	---	---	0.00
9.83	0.00	92.85	0.00	---	---	---	---	---	---	---	0.00
10.00	0.00	92.83	0.00	---	---	---	---	---	---	---	0.00
10.17	0.00	92.81	0.00	---	---	---	---	---	---	---	0.00
10.33	0.00	92.80	0.00	---	---	---	---	---	---	---	0.00
10.50	0.00	92.78	0.00	---	---	---	---	---	---	---	0.00
10.67	0.00	92.77	0.00	---	---	---	---	---	---	---	0.00
10.83	0.00	92.75	0.00	---	---	---	---	---	---	---	0.00
11.00	0.00	92.74	0.00	---	---	---	---	---	---	---	0.00
11.17	0.00	92.72	0.00	---	---	---	---	---	---	---	0.00
11.33	0.00	92.71	0.00	---	---	---	---	---	---	---	0.00
11.50	0.00	92.70	0.00	---	---	---	---	---	---	---	0.00
11.67	0.00	92.69	0.00	---	---	---	---	---	---	---	0.00
11.83	0.00	92.68	0.00	---	---	---	---	---	---	---	0.00
12.00	0.00	92.67	0.00	---	---	---	---	---	---	---	0.00
12.17	0.00	92.66	0.00	---	---	---	---	---	---	---	0.00
12.33	0.00	92.65	0.00	---	---	---	---	---	---	---	0.00

...End

Reservoir Report

Reservoir No. 1 - Infiltration Trench

English

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	92.50	00	0	0
6.00	98.50	175	525	525
6.50	99.00	1,500	419	944
7.00	99.50	1,700	800	1,744

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.5	0.0	0.0	0.0
Span in	= 0.5	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 92.50	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= ----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.0	0.0	0.0	0.0
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Stage / Storage / Discharge Table

Note: All outflows have been analyzed under inlet and outlet control.

[illegible]

Hydrograph Report

Page 1

English

Hyd. No. 9

DA-2 10YR ROUTED

Hydrograph type = Reservoir
Storm frequency = 10 yrs
Inflow hyd. No. = 6
Max. Elevation = 96.99 ft

Peak discharge = 0.01 cfs
Time interval = 1 min
Reservoir name = Infiltration Tr
Max. Storage = 393 cuft

Storage Indication method used.

Total Volume = 399 cuft

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
0.17	0.54	96.28	0.01	---	---	---	---	---	---	---	0.01
0.33	0.00	96.93	0.01	---	---	---	---	---	---	---	0.01
0.50	0.00	96.84	0.01	---	---	---	---	---	---	---	0.01
0.67	0.00	96.74	0.01	---	---	---	---	---	---	---	0.01
0.83	0.00	96.65	0.01	---	---	---	---	---	---	---	0.01
1.00	0.00	96.56	0.01	---	---	---	---	---	---	---	0.01
1.17	0.00	96.47	0.01	---	---	---	---	---	---	---	0.01
1.33	0.00	96.38	0.01	---	---	---	---	---	---	---	0.01
1.50	0.00	96.29	0.01	---	---	---	---	---	---	---	0.01
1.67	0.00	96.21	0.01	---	---	---	---	---	---	---	0.01
1.83	0.00	96.12	0.01	---	---	---	---	---	---	---	0.01
2.00	0.00	96.04	0.01	---	---	---	---	---	---	---	0.01
2.17	0.00	95.95	0.01	---	---	---	---	---	---	---	0.01
2.33	0.00	95.87	0.01	---	---	---	---	---	---	---	0.01
2.50	0.00	95.79	0.01	---	---	---	---	---	---	---	0.01
2.67	0.00	95.71	0.01	---	---	---	---	---	---	---	0.01
2.83	0.00	95.63	0.01	---	---	---	---	---	---	---	0.01
3.00	0.00	95.55	0.01	---	---	---	---	---	---	---	0.01
3.17	0.00	95.47	0.01	---	---	---	---	---	---	---	0.01
3.33	0.00	95.39	0.01	---	---	---	---	---	---	---	0.01
3.50	0.00	95.32	0.01	---	---	---	---	---	---	---	0.01
3.67	0.00	95.24	0.01	---	---	---	---	---	---	---	0.01
3.83	0.00	95.17	0.01	---	---	---	---	---	---	---	0.01
4.00	0.00	95.10	0.01	---	---	---	---	---	---	---	0.01
4.17	0.00	95.03	0.01	---	---	---	---	---	---	---	0.01
4.33	0.00	94.96	0.01	---	---	---	---	---	---	---	0.01
4.50	0.00	94.89	0.01	---	---	---	---	---	---	---	0.01
4.67	0.00	94.82	0.01	---	---	---	---	---	---	---	0.01
4.83	0.00	94.75	0.01	---	---	---	---	---	---	---	0.01
5.00	0.00	94.68	0.01	---	---	---	---	---	---	---	0.01
5.17	0.00	94.62	0.01	---	---	---	---	---	---	---	0.01
5.33	0.00	94.55	0.01	---	---	---	---	---	---	---	0.01
5.50	0.00	94.49	0.01	---	---	---	---	---	---	---	0.01
5.67	0.00	94.43	0.01	---	---	---	---	---	---	---	0.01
5.83	0.00	94.37	0.01	---	---	---	---	---	---	---	0.01
6.00	0.00	94.30	0.01	---	---	---	---	---	---	---	0.01

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Outflow cfs
6.17	0.00	94.25	0.01	---	---	---	---	---	---	---	0.01
6.33	0.00	94.19	0.01	---	---	---	---	---	---	---	0.01
6.50	0.00	94.13	0.01	---	---	---	---	---	---	---	0.01
6.67	0.00	94.07	0.01	---	---	---	---	---	---	---	0.01
6.83	0.00	94.02	0.01	---	---	---	---	---	---	---	0.01
7.00	0.00	93.96	0.01	---	---	---	---	---	---	---	0.01
7.17	0.00	93.91	0.01	---	---	---	---	---	---	---	0.01
7.33	0.00	93.86	0.01	---	---	---	---	---	---	---	0.01
7.50	0.00	93.81	0.01	---	---	---	---	---	---	---	0.01
7.67	0.00	93.76	0.01	---	---	---	---	---	---	---	0.01
7.83	0.00	93.71	0.01	---	---	---	---	---	---	---	0.01
8.00	0.00	93.66	0.01	---	---	---	---	---	---	---	0.01
8.17	0.00	93.61	0.01	---	---	---	---	---	---	---	0.01
8.33	0.00	93.56	0.01	---	---	---	---	---	---	---	0.01
8.50	0.00	93.52	0.01	---	---	---	---	---	---	---	0.01
8.67	0.00	93.48	0.01	---	---	---	---	---	---	---	0.01
8.83	0.00	93.43	0.01	---	---	---	---	---	---	---	0.01
9.00	0.00	93.39	0.01	---	---	---	---	---	---	---	0.01
9.17	0.00	93.35	0.01	---	---	---	---	---	---	---	0.01
9.33	0.00	93.31	0.01	---	---	---	---	---	---	---	0.01
9.50	0.00	93.27	0.01	---	---	---	---	---	---	---	0.01
9.67	0.00	93.23	0.01	---	---	---	---	---	---	---	0.01
9.83	0.00	93.20	0.01	---	---	---	---	---	---	---	0.01
10.00	0.00	93.16	0.01	---	---	---	---	---	---	---	0.01
10.17	0.00	93.12	0.01	---	---	---	---	---	---	---	0.01
10.33	0.00	93.09	0.00	---	---	---	---	---	---	---	0.00
10.50	0.00	93.06	0.00	---	---	---	---	---	---	---	0.00
10.67	0.00	93.03	0.00	---	---	---	---	---	---	---	0.00
10.83	0.00	93.00	0.00	---	---	---	---	---	---	---	0.00
11.00	0.00	92.97	0.00	---	---	---	---	---	---	---	0.00
11.17	0.00	92.94	0.00	---	---	---	---	---	---	---	0.00
11.33	0.00	92.92	0.00	---	---	---	---	---	---	---	0.00
11.50	0.00	92.90	0.00	---	---	---	---	---	---	---	0.00
11.67	0.00	92.87	0.00	---	---	---	---	---	---	---	0.00
11.83	0.00	92.85	0.00	---	---	---	---	---	---	---	0.00
12.00	0.00	92.83	0.00	---	---	---	---	---	---	---	0.00
12.17	0.00	92.82	0.00	---	---	---	---	---	---	---	0.00
12.33	0.00	92.80	0.00	---	---	---	---	---	---	---	0.00
12.50	0.00	92.78	0.00	---	---	---	---	---	---	---	0.00
12.67	0.00	92.77	0.00	---	---	---	---	---	---	---	0.00
12.83	0.00	92.75	0.00	---	---	---	---	---	---	---	0.00
13.00	0.00	92.74	0.00	---	---	---	---	---	---	---	0.00
13.17	0.00	92.72	0.00	---	---	---	---	---	---	---	0.00
13.33	0.00	92.71	0.00	---	---	---	---	---	---	---	0.00
13.50	0.00	92.70	0.00	---	---	---	---	---	---	---	0.00
13.67	0.00	92.69	0.00	---	---	---	---	---	---	---	0.00
13.83	0.00	92.68	0.00	---	---	---	---	---	---	---	0.00
14.00	0.00	92.67	0.00	---	---	---	---	---	---	---	0.00

...End

Reservoir Report

Page 1

Reservoir No. 1 - Infiltration Trench

English

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	92.50	00	0	0
6.00	98.50	175	525	525
6.50	99.00	1,500	419	944
7.00	99.50	1,700	800	1,744

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.5	0.0	0.0	0.0
Span in	= 0.5	0.0	0.0	0.0
No. Barrels	= 1	0	0	0
Invert El. ft	= 92.50	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .013	.000	.000	.000
Orif. Coeff.	= 0.60	0.00	0.00	0.00
Multi-Stage	= —	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.0	0.0	0.0	0.0
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

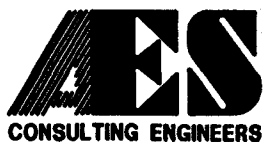
Stage / Storage / Discharge Table

Note: All outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	92.50	0.00	—	—	—	—	—	—	—	0.00
6.00	525	98.50	0.02	—	—	—	—	—	—	—	0.02
6.50	944	99.00	0.02	—	—	—	—	—	—	—	0.02
7.00	1,744	99.50	0.02	—	—	—	—	—	—	—	0.02

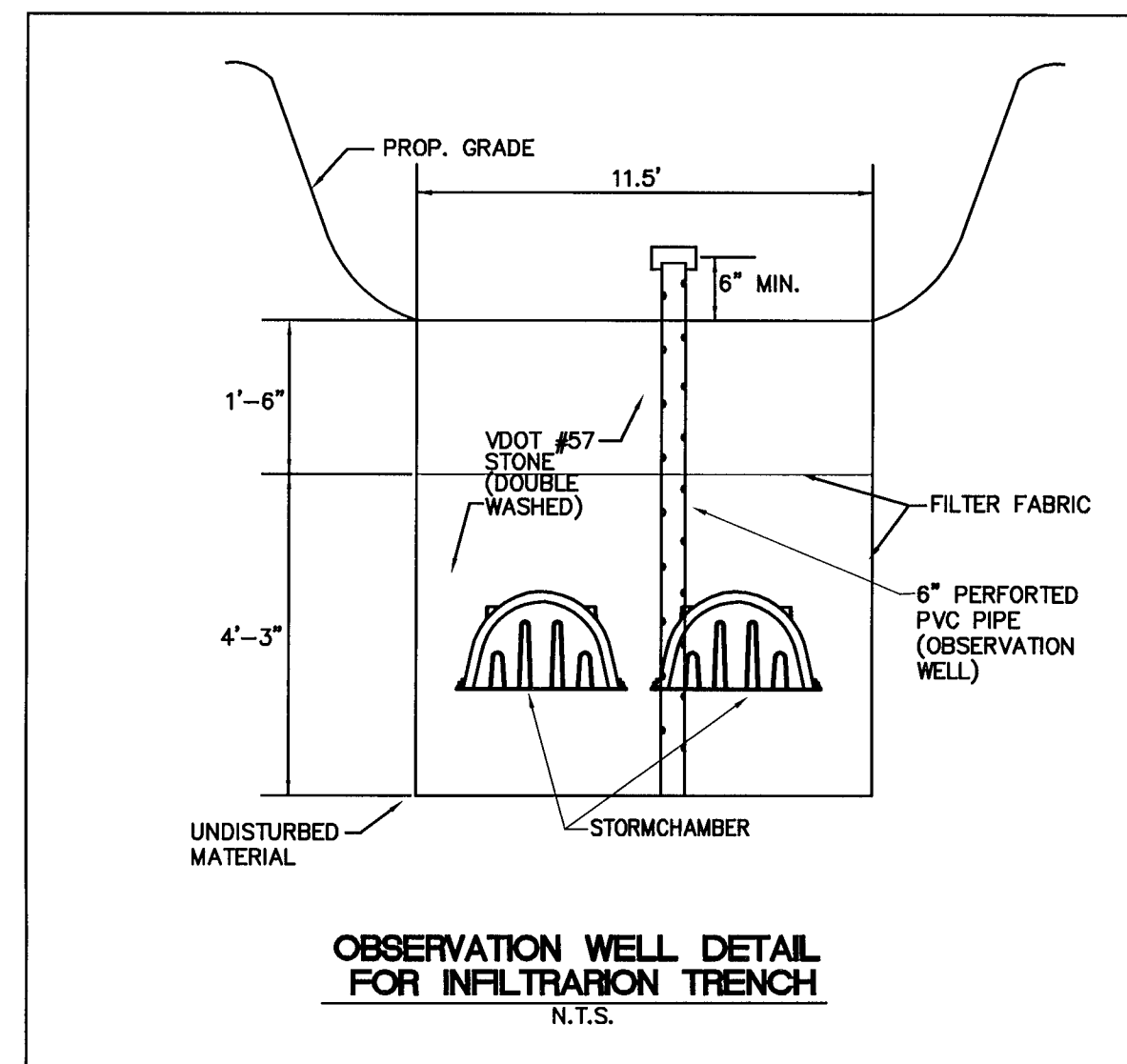
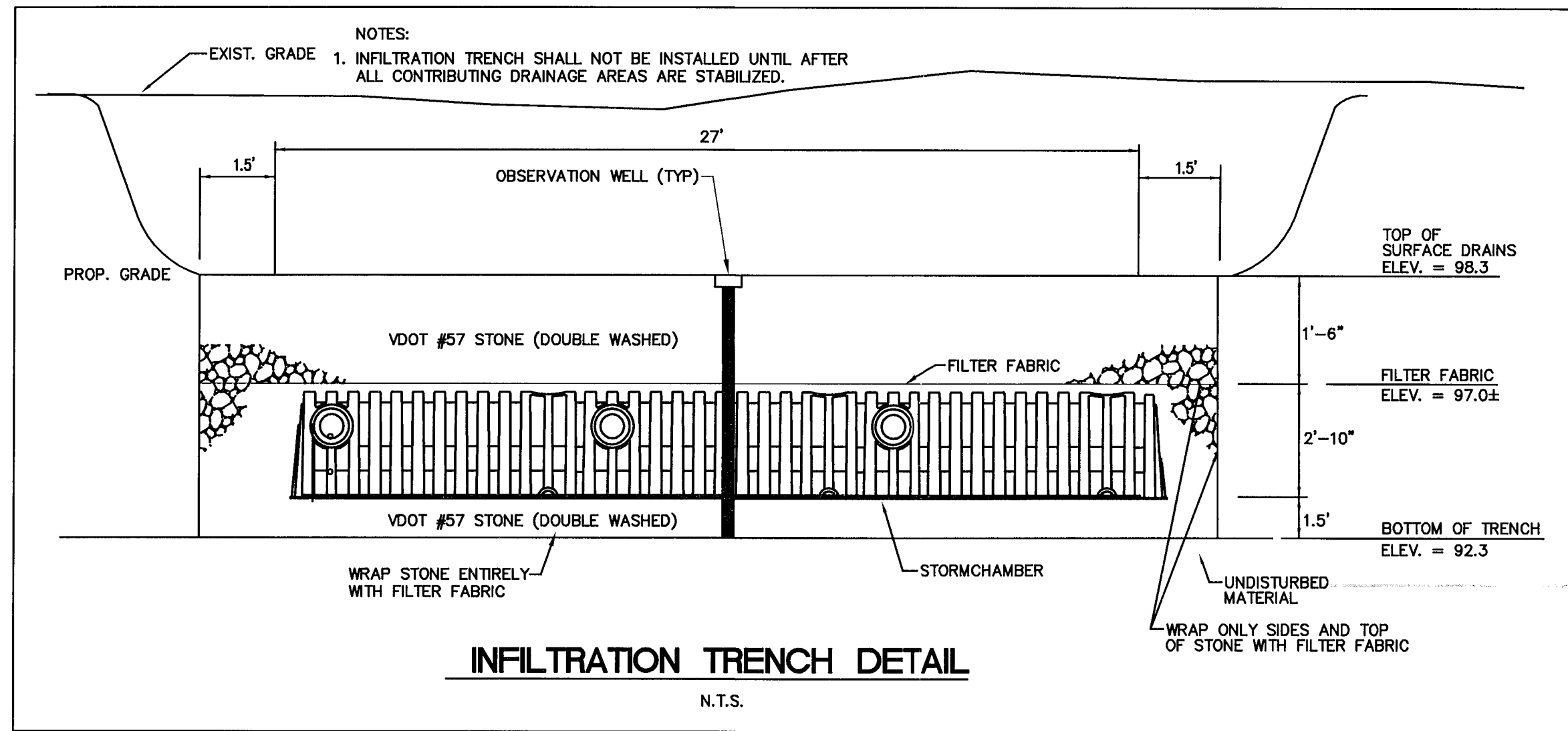


PRE-DEVELOPMENT DRAINAGE AREAS



**5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994**

No.	DATE	REVISION / COMMENT / NOTE		BY



INFILTRATION TRENCH MAINTENANCE REQUIREMENTS

THE FOLLOWING IS A MAINTENANCE PROGRAM FOR THE INFILTRATION TRENCH FOR THE WEATHERCRAFTERS EXPANSION. THE TRENCH SERVES 0.24 ACRES AT THE WEATHERCRAFTERS SITE ON TWINING ROAD IN JAMES CITY COUNTY, VIRGINIA. THE FACILITY IS A 10 POINT COUNTY TYPE C-2 BMP. IT IS DESIGNED TO ENSURE PEAK RUNOFF FROM THE 2- AND 10- YEAR DESIGN FREQUENCY STORM EVENTS WERE NOT INCREASED DUE TO DEVELOPMENT OF THE SITE AND TO ENSURE WATER QUALITY CRITERIA IS MET.

THE MAINTENANCE PROGRAM IS REQUIRED TO ENSURE THE STORMWATER MANAGEMENT / BEST MANAGEMENT PRACTICE (BMP) INFILTRATION FACILITY FUNCTIONS AS DESIGNED AND TO PROVIDE FOR REASONABLE AESTHETIC CONDITIONS. PROPER MAINTENANCE IS ENCOURAGED TO PREVENT THE INTRODUCTION OF DEBRIS AND SEDIMENT INTO PRETREATMENT AREAS, THE BMP INFILTRATION AREA AND DOWNSTREAM WATERWAYS.

FOLLOWING INSTALLATION AND ESTABLISHMENT OF VEGETATION IN DISTURBED SITE AREAS, INSPECTIONS FOR SEDIMENT BUILDUPS SHALL BE PERFORMED AT LEAST QUARTERLY. IT IS ANTICIPATED THAT UNDER NORMAL CONDITIONS, SEDIMENT REMOVAL WILL BE REQUIRED ONCE PER YEAR. IF OTHER CONSTRUCTION OR RELATED LAND-DISTURBING ACTIVITIES ARE PERFORMED UPSLOPE OF THE BMP, ADEQUATE PROTECTION MEASURES SHOULD BE IMPLEMENTED WITH INSPECTIONS PERFORMED AT LEAST ONCE WEEKLY.

THE OWNER OR DESIGNATED REPRESENTATIVE WILL INSPECT THE SWM/BMP STRUCTURE AFTER EACH SIGNIFICANT RAINFALL EVENT OR THE FOLLOWING WORKING DAY IF A WEEKEND OR HOLIDAY OCCURS. A SIGNIFICANT RAINFALL FOR THIS STRUCTURE IS DEFINED AS ONE (1) INCH OR MORE OF GAUGED RAINFALL WITHIN A 24-HOUR PERIOD, ONCE PER YEAR (MORE OR LESS) A REPRESENTATIVE OF THE COUNTY MAY JOINTLY INSPECT THE STRUCTURE. APPROPRIATE ACTION, PERFORMED AT THE COST OF THE OWNER WILL BE TAKEN TO ENSURE APPROPRIATE MAINTENANCE. WHERE STRUCTURES ARE TO BE MAINTAINED JOINTLY, ALLOCATION OF MAINTENANCE COSTS WILL BE IN ACCORDANCE WITH TERMS ESTABLISHED IN MAINTENANCE AGREEMENTS. KEYS TO LOCKED ACCESS POINTS OR STRUCTURES SHALL BE MADE AVAILABLE TO THE COUNTY UPON REQUEST.

CHECK OBSERVATION WELLS IMMEDIATELY AFTER A SIGNIFICANT RAINFALL EVENT HAS CEASED OR ITS INTENSITY HAS SLOWED. IF THE TRENCH IS FULL OF STORMWATER RUNOFF, WATER SHOULD BE WITHIN THE FILTER STONE ZONES. IF THE OVERFLOW CHANNEL IS CONVEYING RUNOFF AND THE WATER LEVEL IN THE TRENCH IS RELATIVELY LOW, IT IS LIKELY THAT THE SURFACE LAYERS OF THE FILTERING STONE OR THE FILTER FABRIC ARE CLOGGED. IF THIS CONDITION IS PRESENT, THE TOP LAYERS OF THE FILTERING STONE AND FILTER FABRIC SHOULD BE REPLACED WITH CLEAN MATERIAL.

CHECK OBSERVATION WELLS 2 TO 3 DAYS FOLLOWING A SIGNIFICANT RAINFALL EVENT. IF STORMWATER IS PRESENT IN THE BOTTOM OF THE WELLS, COMPLETE REPLACEMENT OF THE FILTERING STONE AND FILTER FABRIC IS NECESSARY. ALTHOUGH THE LOCATION OF THE SEASONAL WATER TABLE SHOULD HAVE BEEN IDENTIFIED AS BELOW THE FACILITY DURING DESIGN, CARE SHOULD BE TAKEN TO ENSURE WATER PRESENT AT THE BOTTOM OF THE WELLS IS NOT DUE TO A HIGH GROUNDWATER TABLE RATHER THAN OPERATION OF THE INFILTRATION SYSTEM. FOR EXAMPLE, IF THERE IS WATER IN THE OBSERVATION WELLS 48 HOURS FOLLOWING A RAINFALL EVENT IN THE SPRING APRIL-MAY, BUT NOT IN THE SUMMER JULY-AUGUST, THE SEASONAL HIGH WATER TABLE MAY BE HIGHER THAN ORIGINALLY ANTICIPATED.

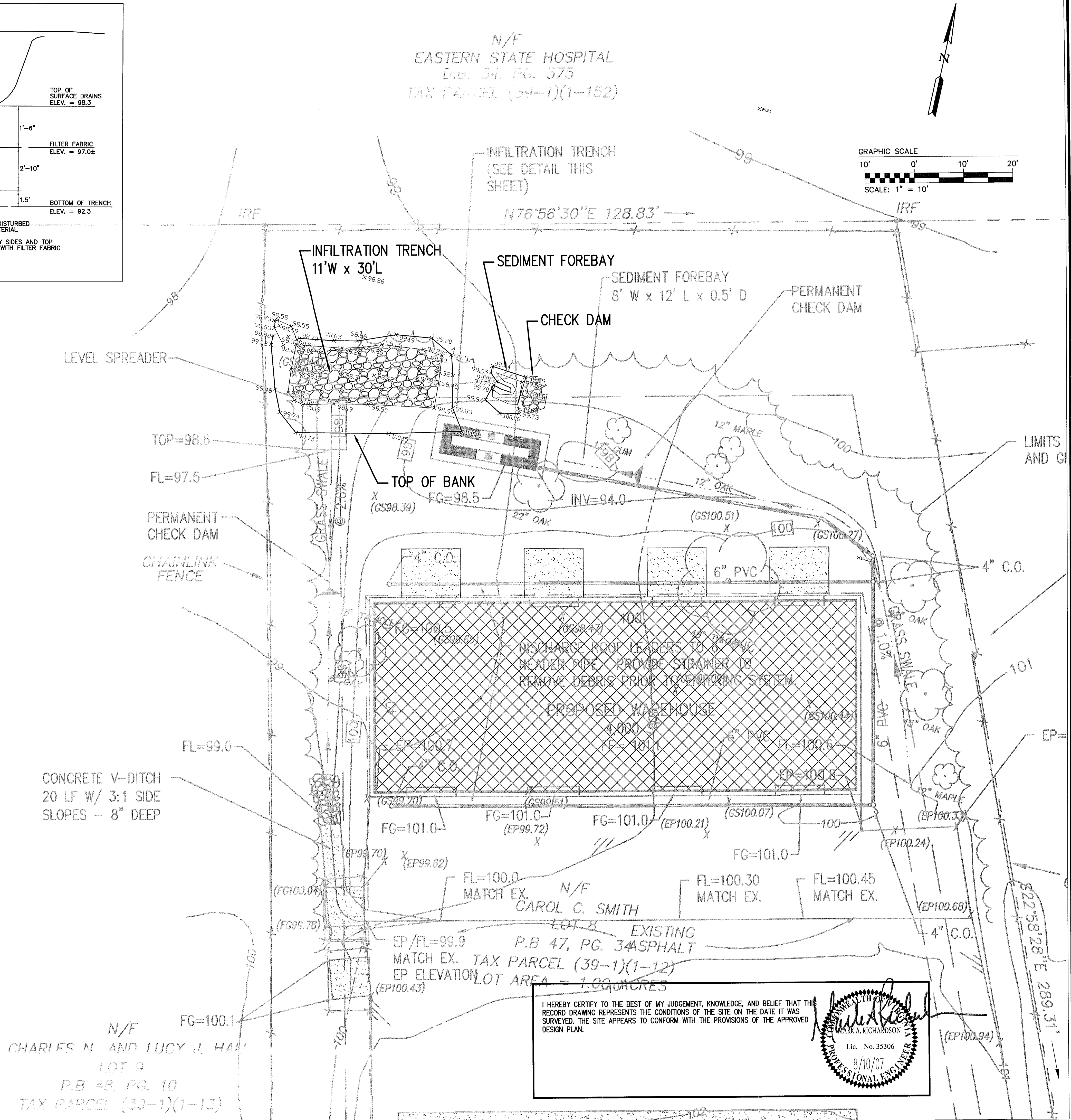
1. IMMEDIATELY REMOVE TRASH, DEBRIS OR SEDIMENT THAT PREVENTS THE MOVEMENT OF WATER AND TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AND PROVIDE FOR AN ATTRACTIVE APPEARANCE. PROPERTY MAINTENANCE MEASURES INCLUDING THE REMOVAL OF TRASH, LITTER AND SEDIMENT FROM SURROUNDING GRASS, PARKING AND STABILIZED CONTRIBUTING AREAS SHOULD BE PERFORMED WEEKLY TO PREVENT MIGRATION INTO THE BMP. DURING WINTER, KEEP TRASH REMOVAL KEYS AS FAR AWAY FROM THE INFILTRATION AREA TO THE GREATEST EXTENT POSSIBLE. TRASH AND LITTER COLLECTION IS ENCOURAGED DAILY AROUND THE BMP. DISPOSE OF SEDIMENTS REMOVED FROM THE FACILITY AT AN ACCEPTABLE DISPOSAL AREA.

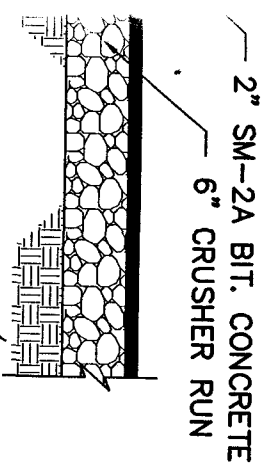
MANY FACTORS WILL AFFECT THE OPERATION OF AN INFILTRATION SYSTEM. ROUTINE INSPECTIONS AND MAINTENANCE SHOULD BE PERFORMED BY THE SAME ASSIGNED INDIVIDUAL IN ORDER TO ESTABLISH A BASELINE KNOWLEDGE OF HOW THE SYSTEM FUNCTIONS UNDER DIFFERENT SITE AND WEATHER CONDITIONS.

ROUTINELY INSPECT VEGETATED FILTERING STRIPS ADJACENT TO THE FACILITY. A HEALTHY STAND OF GRASS SHOULD BE MAINTAINED AT ALL TIMES. MOW THE FILTER STRIPS WITH LAWNMOWERS AT HIGH SETTING TO ACHIEVE A CUT STAND OF GRASS 4 INCHES OR HIGHER. GRASS CLIPPINGS SHOULD BE BAGGED AS MOWING PROGRESSES SO CUTTINGS WILL NOT PLUG THE FILTER STONE AND FABRIC.

RECORD KEEPING. THE OWNER OR DESIGNATED REPRESENTATIVE SHALL KEEP REASONABLE, ACCURATE WRITTEN RECORDS OF INSPECTIONS PERFORMED FOR THE STRUCTURE. RECORDS SHALL DOCUMENT ROUTINE MAINTENANCE AND/OR REPAIRS PERFORMED. COPIES SHALL BE PROVIDED TO THE COUNTY UPON REQUEST.

THE FACILITY SHALL NOT ACCEPT ADDITIONAL DRAINAGE OR BE MODIFIED IN ANY WAY WITHOUT PRIOR CONSENT OR APPROVAL BY THE ENVIRONMENTAL DIVISION OF JAMES CITY COUNTY.



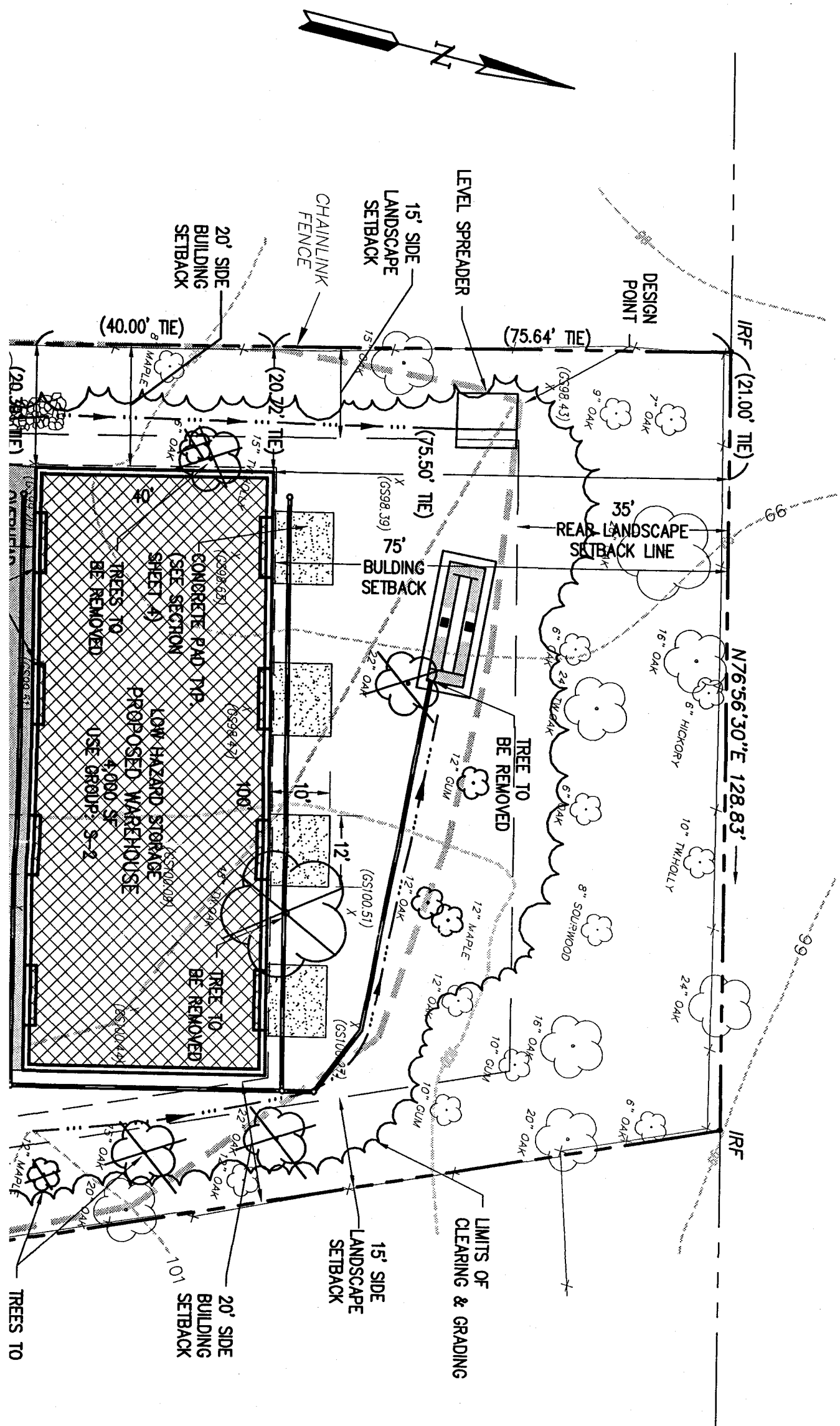


IMPACTED SUBGRADE

AVENMENT SECTION

N.T.S.

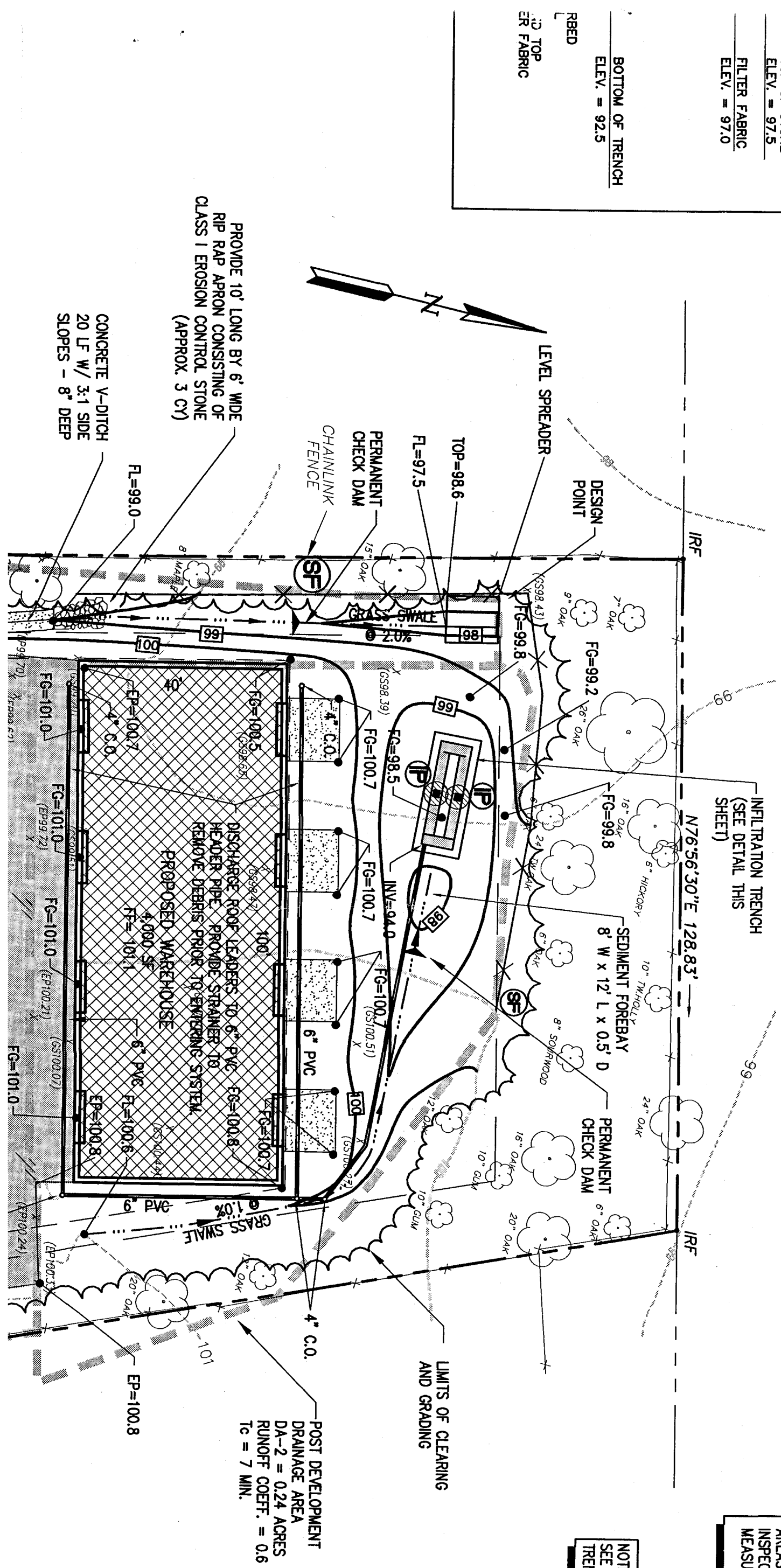
N/F
EASTERN STATE HOSPITAL
D.B. 34, PG. 375
TAX PARCEL (39-1)(1-152)



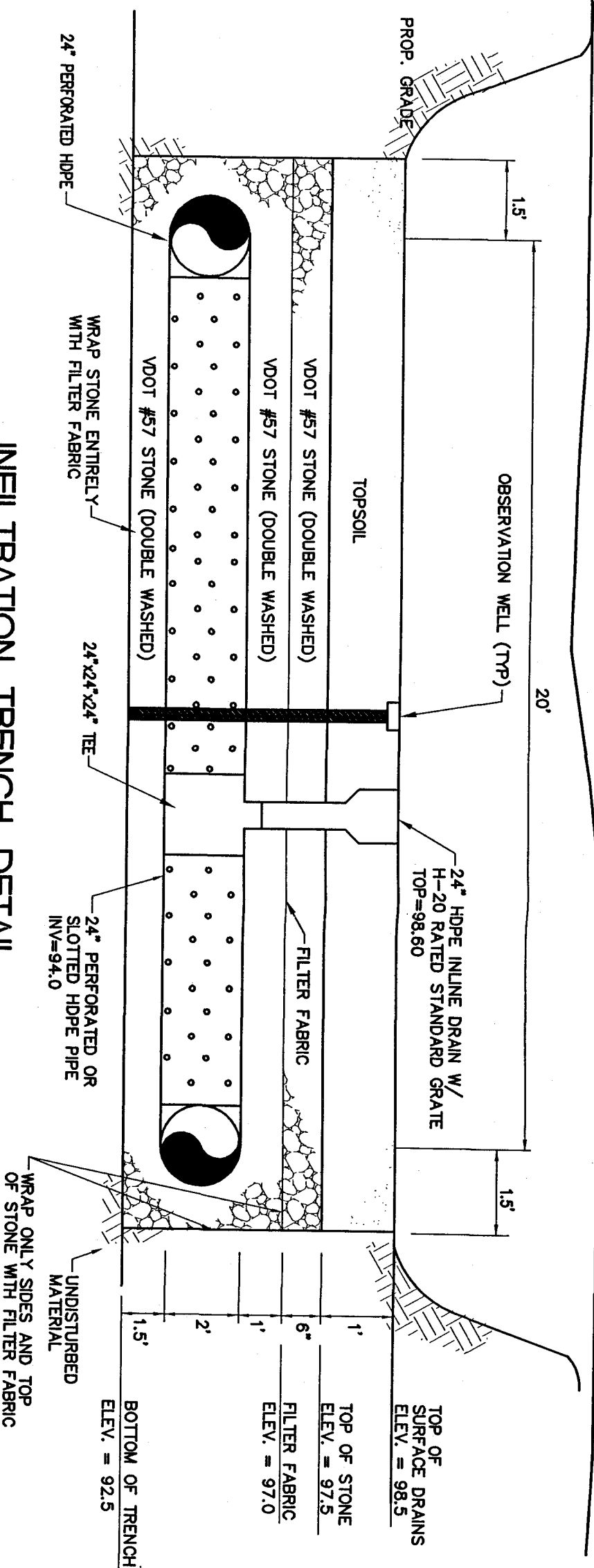
N/F
EASTERN STATE HOSPITAL
D.B. 34, PG. 375
TAX PARCEL (39-1)(1-152)

THE LOCATION OF ANY TEMPORARY AREAS SHALL BE COORDINATED WITH INSPECTOR. APPROPRIATE EROSION MEASURES SHALL BE PROVIDED FOR

**NOTE:
SEE SHEET 4 FOR INFILTRATION
TRENCH MAINTENANCE PLAN**

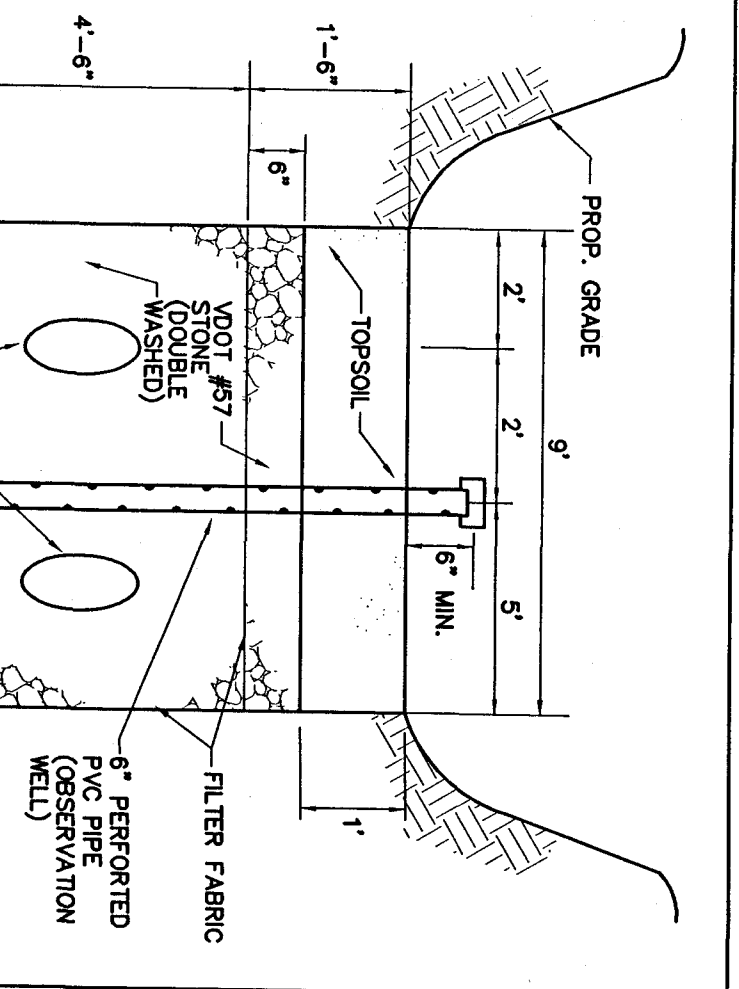


- NOTES:
- INFILTRATION TRENCH SHALL NOT BE INSTALLED UNTIL AFTER ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED.



INFILTRATION TRENCH DETAIL

N.T.S.



PROVIDE 10' LONG BY 6' WIDE
RIP RAP APRON CONSISTING OF
CLASS I EROSION CONTROL STONE
(APPROX. 3 CY)

CONCRETE V-DITCH
20 LF W/ 3:1 SIDE
SLOPES - 8\"/>

FL=99.0

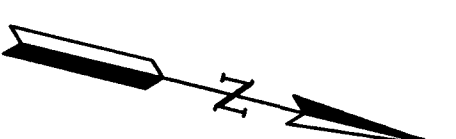
PERMANENT
CHECK DAM
CHAINLINK
FENCE

FL=97.5

TOP=98.6

LEVEL SPREADER

DESIGN
POINT



N.T.S.



PERMANENT VEGETATIVE COVER.

REMOVE ANY TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION.